

**APPENDIX C**

**COST ESTIMATES FOR REMEDIAL ACTION  
ALTERNATIVES**

## **COST ESTIMATION METHODOLOGY**

Cost estimates were generated for each of the six alternatives carried forward for detailed analysis in accordance with USEPA Guidance Document 540-R-00-002, *A Guide to Developing and Documenting Cost Estimates During the Feasibility Study*. As discussed in this guidance, cost estimates at the FS stage need to be accurate to within 30%/+50%. Since these cost estimates will be used to evaluate the relative costs of the various alternatives, TRC prepared each estimate using a similar level of detail and consistency of assumptions.

Note that, per EPA guidance, these estimates should not be used for developing project budgets, since there are many factors that could change after the FS is prepared and before the remedy is implemented. Changes may arise during public comment or in response to State comments, costs could change if the remedy is not implemented in a timely fashion, costs associated with design elements that are not foreseeable during the FS could arise, costs will vary depending upon the requirements of the Long Term Monitoring Plan and costs could increase or decrease due to many other variables. A more accurate cost estimate will be developed during Remedial Design.

Cost estimates and backup information for each alternative are included in the following subsections of this Appendix. For each alternative, a narrative listing the cost assumption details is provided. Following the narrative, a 2-4 page cost estimate summary table is provided to give a general overview of the capital cost elements and the operations and maintenance cost elements. Additionally, more detailed cost tables are provided for each cost element that break out the line item costs used to assemble each cost element.

### **Unit Costs**

Unit costs were obtained from varied sources, including standard cost estimating publications, vendor quotes and, where appropriate, professional engineering experience. Many of the unit costs were obtained using R.S. Means handbooks (*Environmental Remediation Cost Data, 2000*; *Means Building Construction Cost Data, 2000*). These publications provide nation-wide average unit costs for labor, materials and equipment for numerous aspects of construction/remediation projects.

For certain location-specific items such as fill materials and temporary facilities (including utilities), unit costs were obtained by contacting local sources, authorities, and vendors as appropriate. Unit costs for items such as analytical services, equipment rental and material purchases were obtained by reviewing data from ongoing projects with similar scopes of work pertaining to each cost item (e.g., similar detection limits for analytical services). Unit costs for solidification/stabilization were developed based on the results of the treatability study and engineering experience on projects of similar size.

## **Quantities**

### **Capital Costs**

To support development of cost estimates for each alternative, quantities of materials to be handled, purchased or disposed were estimated. For several items quantities were estimated using measurements from site drawings. The volume of sludge present in each lagoon area was estimated as described in Appendix B of the FS Report.

Conceptual plans were developed for alternatives RAA-3, RAA-4 and RAA-7. Each of these conceptual plans delineates a footprint within the site boundaries where materials would be covered either in place or after consolidation. It should be emphasized that these conceptual diagrams do not indicate the specific locations stormwater control features, stabilized slopes, and other potential appurtenant features, but the costs of these features are included in each cost estimate.

Using these conceptual plans, quantities of materials required for cover construction and areas required for wetland compensation (assuming a 1:1 replication ratio) were estimated. Engineering estimates of the time needed to implement the various stages of each alternative were made to generate costs for rental equipment and certain labor items. Line item-specific notes/assumptions are included on the cost summary tables and sub-element cost worksheets. Consistent estimating procedures were used for each alternative.

### **Operation and Maintenance Costs**

Operation and maintenance costs include two categories:

long term monitoring of ground water and sediment, (common to all alternatives)  
inspection, maintenance and repair of constructed systems (alternative specific)

Monitoring costs were estimated after discussing with EPA, the most likely sampling approach that would be incorporated into the Long Term Monitoring Plan for the site.

## **Adjustments to Costs**

After individual unit costs and quantities were obtained, adjustments were made to provide contingencies for potential variations associated with each cost item. Initial adjustments were made to specific line item costs such as materials to be excavated or purchased and placed. As costs for various elements and/or entire alternatives were developed, additional adjustments were applied in accordance with the EPA's cost estimating guidance document (EPA, July 2000).

Volumes of material to be excavated including sludge and/or soils contaminated with waste materials were increased by 20% beyond the volumes calculated. This adjustment was made to account for required sidewall sloping given the depth of some areas of the excavation. Also, as much of the area to be excavated may be below the ground water table, significant sloughing of the sidewalls may be experienced. For alternatives RAA-3, RAA-4 and RAA-7 the volumes of

materials required to construct each cover were calculated by multiplying the area of each footprint identified in the conceptual plan by each respective layer's proposed thickness. This calculated volume was then increased by 30% to account for grading.

Additional adjustments made include those associated with overhead and profit, level of personnel protection, scope and bid contingencies, and a localization factor applied to unit costs obtained from standard cost estimating publications. Contractor overhead and profit were each applied at 10% of total sub-element cost items. Costs for work items which will be performed in Level B personnel protective equipment (PPE) were increased by 42% for labor and 60% for equipment in accordance with the guidelines presented in the Means Environmental Remediation Cost Data book. These factors account for the decreased rate of productivity when work is performed under these conditions. TRC estimated that 33% of excavation work would require Level B.

Scope and bid contingencies were applied consistent with the EPA cost estimating guidance document (EPA, July 2000). These contingencies address currently un-identified issues which may arise during development of the remedial design and implementation of the selected remedial alternative. The scope contingency applied varies based on the degree to which an alternative or technology has been proven at other sites. Exhibit 5-6 of the EPA's cost estimating guidance (EPA, July 2000) was used to select scope contingencies for each alternative evaluated. A scope contingency of 10% was applied to Alternatives RAA-3 and RAA-4. These alternatives involve relatively well-documented technologies, including excavation and cover construction. A scope contingency of 20% was applied to Alternative RAA-7 costs as this alternative includes solidification/stabilization, since there is more potential uncertainty about the productivity and there is a higher likelihood of unforeseen circumstances arising for this technology.

Bid contingencies were applied to address potential quantity overruns, modifications and change orders after award of the contract. A bid contingency of 15% was applied to Alternatives RAA-3, RAA-4 and RAA-7. The exposure to potential modifications and material overruns is considered roughly equal for these alternatives, given the highest degree of uncertainty is associated with the actual quantity of contaminated material to be covered and/or handled.

No adjustments were made to escalate costs to current-year dollars as all unit costs are considered current. The Means costs estimating manuals used incorporate costs that are current for the year 2000. An escalation factor of 1.0 was applied to these costs to update them to 2001 costs. Costs obtained from other project experience reflect currently ongoing projects. Costs obtained from vendor quotes were obtained during the period from February through May 2001.

Inflation factors associated with future project costs (O&M and periodic costs) were not applied. This is consistent with Section 4.2 of the EPA cost estimating guidance (EPA, 2000). For present worth analyzes, a discount rate of 7% was applied to all costs beyond the capital costs.

# RAA-1

There are no costs for Alternative RAA-1.

# RAA-2

## RAA-2: Institutional Controls

### ASSUMPTIONS:

- i. Discount rate for net present worth calculation of 7% per recommendation of EPA document 540-R-00-002, A Guide to Developing and Documenting Cost Estimates During the Feasibility Study.

- ii. Cost estimating sources:

Building Construction Cost Data, RS Means, 58<sup>th</sup> Edition, 2000  
Environmental Remediation Cost Data, RS Means, 6<sup>th</sup> Edition, 2000  
Local vendors, RI costs for Pownal Tannery, and ongoing projects

- iii. Abbreviations: CY = cubic yards; CF = cubic feet; SY = square yard; SF = square feet; LF = linear feet; LS = lump sum; EA = each; MWK = man weeks; MSF = thousand square feet; MO = month; WK = week

### CAPITAL COST ITEMS:

Estimated Time to Complete Alternative:

- Site Work	1 wk
-	6 Months

Note: Total project duration does not include seasonal impacts or delays.

#### 2. Site Work:

*Perimeter Fence:* Assumed the removal of existing fence and the installation of a 7-foot high fence around the entire perimeter of the Lagoon area – approximately 5,000 LF.

*Land Use Restriction:* See hourly breakdown and rates included with applicable Common Cost Sub-Element Worksheets.



Alternative 2

## INSTITUTIONAL CONTROLS

## COST ESTIMATE SUMMARY

Site: Pownal Tannery Site  
 Location: Pownal, VT  
 Phase: Feasibility Study  
 Base Year: 2001  
 Date: Apr-01

Description: Alternative 2 consists of the implementation of institutional controls only. A long term monitoring plan would also be implemented. Capital costs occur in Year 0. Annual costs occur in Years 1-6. Periodic costs occur every 5 yrs for 30 years.

## CAPITAL COSTS:

DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	NOTES
Institutional Controls					
Perimeter Fence	1	LS	\$159,898.20	\$159,898	
Land Use Restrictions	2	LS	\$31,882.62	\$63,765	Preparation & filing; exc controls and res restrictions
<b>SUBTOTAL</b>				<b>\$223,663</b>	
Contingency (Scope & Bid)	10%			\$22,366	
<b>SUBTOTAL</b>				<b>\$246,030</b>	

Project Management 15% \$36,904

## TOTAL CAPITAL COST:

**\$282,934**

## ANNUAL O&amp;M COSTS (Year 1):

DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	NOTES
Site Monitoring					
Site Inspections	2	EA	\$3,000.00	\$6,000	
Groundwater Sampling - Equipment & Labor	4	EA	\$32,771.92	\$131,088	
Groundwater Analysis - VOCs, SVOCs, Metals	60	EA	\$2,000.00	\$120,000	12 locations, quarterly; inc 3 QA/QC Samples
Groundwater Analysis - Dioxins	14	EA	\$750.00	\$10,500	Semiannually; inc 2 QA/QC Samples
Sediment Sampling - Equipment & Labor	1	EA	\$6,364.10	\$6,364	
Sediment Analysis - VOCs, SVOCs, Metals	7	EA	\$1,100.00	\$7,700	4 locations, annually; inc 3 QA/QC Samples
Sediment Analysis - Dioxins	5	EA	\$800.00	\$4,000	1 QA/QC
<b>SUBTOTAL</b>				<b>\$285,652</b>	
Professional/Technical Support					
Progress Reports			15%	\$42,848	
O&M Oversight			5%	\$14,283	
<b>SUBTOTAL</b>				<b>\$342,782</b>	
Contingency			10%	\$34,278	
<b>TOTAL ANNUAL O&amp;M COST (Year 1)</b>				<b>\$377,060</b>	

## ANNUAL O&amp;M COSTS (Years 2-3):

DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	NOTES
Site Monitoring					
Site Inspections	1	EA	\$3,000.00	\$3,000	
Groundwater Sampling - Equipment & Labor	2	EA	\$32,771.92	\$65,544	
Groundwater Analysis - VOCs, SVOCs, Metals	30	EA	\$2,000.00	\$60,000	12 locations, semi; inc 3 QA/QC Samples
Groundwater Analysis - Dioxins	14	EA	\$750.00	\$10,500	Semiannually; inc 2 QA/QC Samples
Sediment Sampling - Equipment & Labor	1	EA	\$6,364.10	\$6,364	
Sediment Analysis - VOCs, SVOCs, Metals	7	EA	\$1,100.00	\$7,700	4 locations, annually; inc 3 QA/QC Samples
Sediment Analysis - Dioxin	5	EA	\$800.00	\$4,000	1 QA/QC
<b>SUBTOTAL</b>				<b>\$157,108</b>	
Professional/Technical Support					
Progress Reports			15%	\$23,566	
O&M Oversight			5%	\$7,855	
<b>SUBTOTAL</b>				<b>\$188,530</b>	
Contingency			10%	\$18,853	
<b>SUBTOTAL</b>				<b>\$207,382</b>	
<b>TOTAL ANNUAL O&amp;M COST (Years 2-3)</b>				<b>\$207,382</b>	

## Alternative 2

## INSTITUTIONAL CONTROLS

## COST ESTIMATE SUMMARY

Site: Pownal Tannery Site  
 Location: Pownal, VT  
 Phase: Feasibility Study  
 Base Year: 2001  
 Date: Apr-01

Description: Alternative 2 consists of the implementation of institutional controls only. A long term monitoring plan would also be implemented. Capital costs occur in Year 0. Annual costs occur in Years 1-6. Periodic costs occur every 5 yrs for 30 years.

## ANNUAL O&amp;M COSTS (Years 4-6):

DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	NOTES
Site Monitoring					
Site Inspections	1	EA	\$3,000.00	\$3,000	
Groundwater Sampling - Equipment and Labor	1	EA	\$32,771.92	\$32,772	
Groundwater Analysis - VOCs, SVOCs, Metals	15	EA	\$2,000.00	\$30,000	12 locations, annual; inc 3 QA/QC Samples
Groundwater Analysis - Dioxin	14	EA	\$750.00	\$10,500	12 locations; inc 2 QA/QC Samples
Sediment Sampling - Equipment and Labor	1	EA	\$6,364.10	\$6,364	
Sediment Analysis - VOCs, SVOCs, Metals	7	EA	\$1,100.00	\$7,700	4 locations, annual; inc 3 QA/QC Samples
Sediment Analysis - Dioxin	5	EA	\$800.00	\$4,000	1 QA/QC
SUBTOTAL				\$94,336	
Professional/Technical Support					
Progress Reports			15%	\$14,150	
O&M Oversight			5%	\$4,717	
SUBTOTAL				\$113,203	
Contingency			10%	\$11,320	
SUBTOTAL					
TOTAL ANNUAL O&M COST (Years 4-6)				\$124,524	

## PERIODIC COSTS:

DESCRIPTION	YR	UNIT	UNIT COST	TOTAL	NOTES
Perimeter Fence Repairs	5-30	EVENT/5 YR	\$7,994.91	\$7,994.91	5% of installation cost
Five Year Report	5-30	EVENT/5 YR	\$12,000.00	\$12,000.00	
Update Institutional Controls	5-30	EVENT/5 YR	\$3,000.00	\$3,000.00	
				\$22,994.91	

## PRESENT VALUE ANALYSIS:

COST TYPE	YEAR	TOTAL COST	TOTAL COST/YR	DISCOUNT FACTOR	PRESENT VALUE	NOTES
Capital Cost	0	\$363,235	\$282,934	-	-	See support sheet for discount factors and Present Value calculation
Annual O&M Cost	1	\$377,060	\$377,060	-	-	
Annual O&M Cost	2-3	\$414,765	\$207,382	-	-	
Annual O&M Cost	4-6	\$373,571	\$124,524	-	-	
Periodic Cost	5	\$26,169	\$22,995	-	-	Remedial Action Report
Periodic Cost	10	\$26,169	\$22,995	-	-	
Periodic Cost	15	\$26,169	\$22,995	-	-	
Periodic Cost	20	\$26,169	\$22,995	-	-	
Periodic Cost	25	\$26,169	\$22,995	-	-	
Periodic Cost	30	\$26,169	\$22,995	-	-	
TOTAL PRESENT VALUE OF ALTERNATIVE					\$1,302,061	

Alternative 2

## INSTITUTIONAL CONTROLS

## PRESENT VALUE ANALYSIS

Site: Pownal Tannery Site

Description: Alternative 2 consists of establishing institutional controls. Capital costs occur in Year 0. Annual costs occur in Years 1-6. Periodic costs occur every 5 yrs for 30 years.

Location: Pownal, Vt

Phase: Feasibility Study

Base Year: 2001

Date: Apr-01

Year	Capital Costs (\$)	Annual O&M Costs (\$)	Periodic Costs (\$)	Total Costs (\$)	Discount Factor at 7%	Total Present Value Cost at 7% (\$)
0	\$282,934	\$0		\$282,934	1.000	\$282,934
1		\$377,060		\$377,060	0.935	\$352,551
2		\$207,382		\$207,382	0.873	\$181,045
3		\$207,382		\$207,382	0.816	\$169,224
4		\$124,524		\$124,524	0.763	\$95,011
5		\$124,524	\$22,995	\$147,518	0.713	\$105,181
6		\$124,524		\$124,524	0.666	\$82,933
7				\$0	0.623	\$0
8				\$0	0.582	\$0
9				\$0	0.544	\$0
10			\$22,995	\$22,995	0.508	\$11,681
11				\$0	0.475	\$0
12				\$0	0.444	\$0
13				\$0	0.415	\$0
14				\$0	0.388	\$0
15			\$22,995	\$22,995	0.362	\$8,324
16				\$0	0.339	\$0
17				\$0	0.317	\$0
18				\$0	0.296	\$0
19				\$0	0.277	\$0
20			\$22,995	\$22,995	0.258	\$5,933
21				\$0	0.242	\$0
22				\$0	0.226	\$0
23				\$0	0.211	\$0
24				\$0	0.197	\$0
25			\$22,995	\$22,995	0.184	\$4,231
26				\$0	0.172	\$0
27				\$0	0.161	\$0
28				\$0	0.150	\$0
29				\$0	0.141	\$0
30			\$22,995	\$22,995	0.131	\$3,012

TOTAL PRESENT VALUE OF ALTERNATIVE

\$1,302,061

Alternative 2  
Capital Cost Sub-Element  
PERIMETER FENCE

## COST WORKSHEET

Site: Pownal Tannery Site  
Location: Pownal, VT  
Phase: Feasibility Study  
Base Year: 2001  
Date: Apr-01

### Work Statement:

Assuming completion time of 3 weeks. Remove existing fence around Lagoons 1 & 2; Construct fence around outside perimeter of Lagoons; Install fence post every 10' with concrete pads placed to a depth of 4' and having a 1' diameter.

### Cost Analysis:

DESCRIPTION	QTY	UNIT	LABOR	EQUIP	MTRL	UNIT TOTAL	TOTAL
Remove existing	1.40	2000 LF	-	-	-	\$40,000.00	\$56,000.00
7' Galvanized Chain-Link Fence	3000	LF	\$1.31	\$0.00	\$26.17	\$27.48	\$82,440.00
SUBTOTAL							\$138,440.00
Contractor Overhead						5%	\$6,922
SUBTOTAL							\$145,362
Contractor Profit						10%	\$14,536.20
TOTAL UNIT COST							\$159,898.20

### Source of Cost Data:

Building Construction Cost Data, RS Means, 58th Edition, 2000  
Environmental Remediation Cost Data, RS Means, 6th Edition, 2000

### Cost Adjustment Factor:

FACTOR:  
H&S Productivity (labor & equip) ☐  
Escalation to Base Year ☐  
Area Cost Factor ☒  
Subcontractor Overhead & Prof. ☒  
Prime Contractor Overhead & Prof. ☒

NOTES:  
Level D  
Escalation Factor of 1.00 for base year of 2001, cost information 2000  
0.69 localization factor for 052 zip code (Means)  
Assuming markup of 10% each for both Overhead and Profit.  
Assuming markup of 10% each for both Overhead and Profit.

# RAA-3

### **RAA-3: VT Solid Waste (Subchapter 6) Final Cover**

#### **ASSUMPTIONS:**

- i. Discount rate for net present worth calculation of 7% per recommendation of EPA document 540-R-00-002, A Guide to Developing and Documenting Cost Estimates During the Feasibility Study.
- ii. Cost estimating sources:  
  
Building Construction Cost Data, RS Means, 58<sup>th</sup> Edition, 2000  
Environmental Remediation Cost Data, RS Means, 6<sup>th</sup> Edition, 2000  
Local vendors, RI costs for Pownal Tannery, and ongoing projects
- iii. Abbreviations: CY = cubic yards; CF = cubic feet; SY = square yard; SF = square feet; LF = linear feet; LS = lump sum; EA = each; MWK = man weeks; MSF = thousand square feet; MO = month; WK = week
- iv. Future use of site for recreational purposes. A separate investigation and cost estimate will need to be prepared for future site development.
- v. For costing purposes, assumed that wetlands will be recreated at a 1:1 ratio.
- vi. A 1.5 conversion factor was used to convert from CY to TON for sediment/sludge cost calculations.
- vii. RI determination of waste quantities adequate for implementation of RAA-3. No additional sampling required to further delineate extent of waste.

#### **CAPITAL COST ITEMS:**

Estimated Time to Complete Alternative:

- Mobilization/Demobilization:	4 wks
- Site Work	3 wks
- Excavation	3 wks
- Cover	12 wks
- Site Restoration	2 wks
	6 Months

Note: Total project duration does not include seasonal impacts or delays.

1. Mobilization/Demobilization: Site construction activities will require office trailers and field office supplies, storage trailers, decontamination trailers, sanitary facilities, utilities (phone and electrical including connect/disconnect fees and monthly charges), and site lighting. Assumed installation of electrical poles will be necessary to bring power to the lagoon area (1 pole/150 LF). An allowance for pre-/post- construction submittals and implementation plans is included based on hourly rates for engineering and office support. See hourly breakdown included with applicable Common Cost Sub-Element Worksheet.

2. Site Work:

*General Equipment*: Includes construction support equipment such as site vehicles, dumpsters, and water coolers for the site office trailers. A portable generator is included to support equipment located away from electrical receptacles where using an extension cord would be impractical.

*Continuous Air Monitoring*: Assumed 1 laborer at \$55/hr will conduct continuous monitoring during 25% of site preparation and capping. See applicable Common Cost Sub-Element Worksheet for breakdown of monthly expense.

*Clearing/Grubbing*: Will need to clear and grub site to facilitate movement of construction equipment. See applicable RAA-3 Capital Cost Worksheet for additional assumptions.

*Well Abandonment/Replacement*: Assumed 7 wells in the lagoon area will need to be abandoned/replaced for cap construction and excavation of perimeter berm between Hoosic River and Lagoons 1 and 5. Cost estimate based on experience.

*Surveying*: Assumed 2-man crew with GPS at \$135/hr onsite for 1 week during general site preparation and also for 14 weeks during excavation and capping activities at 3 days/week. The unit cost estimate was based on information from an ongoing project. The Subcontractor's cost includes hours for 1 supervisor at \$50/hr and has an additional mark up to include Contractor's O&P.

*Erosion-Dust Control*: Assumed use of a water truck for dust suppression, the installation of silt fencing with hay bales along the access road bordering the Hoosic River (approximately 1,800 LF), and an allowance for construction of one sedimentation trap (50' x 25' x 6'). Exact location, size and grading requirements to be determined during design phase. See applicable Common Cost Sub-Element Worksheet for sedimentation basin quantity and material assumptions made for costing purposes.

*Access Roads-Perimeter*: A temporary road will need to be installed to the lagoon stockpile area and around the perimeter of the cap for construction (using 2,200 LF of road). Road cross-section consists of a layer of geotextile and 0.5 feet of crushed stone. See applicable Common Cost Sub-Element Worksheet for breakdown of unit cost/100 LF.

*Perimeter Construction/Security Fence:* Assumed the removal of existing fence and the installation of a 7-foot high fence around the entire perimeter of the Lagoon area. See applicable RAA-3 Capital Cost Sub-Element Worksheet for additional assumptions.

*Backfill Lagoon 2:* Lagoon 2 will be backfilled to site grade elevation of 510' to create a staging area for site trailers, decontamination facilities and structures. The final two feet of backfill will be 1.5" crushed gravel. See applicable Common Cost Sub-Element Worksheet for additional assumptions.

*Decontamination Structure – Heavy Equipment:* Two, 8" thick, 25' x 65', concrete pads will be constructed in the staging area to remove sediment from equipment. Pad construction includes a 6" gravel base, a concrete curb and sump with 12" corrugated pipe around perimeter. Exact locations and size to be determined during design phase. See applicable Common Cost Sub-Element Worksheet for assumed quantities and material unit costs.

*Decontamination Structure – Personnel:* Two, 4" thick, 6' x 6', concrete pads will be constructed in the staging area. Pad construction includes a 4" gravel base with a concrete curb around the perimeter. Exact locations and size to be determined during design phase. See applicable Common Cost Sub-Element Worksheet for assumed quantities and material unit costs.

*Dewater Standing Water in Lagoons:* Standing water volume estimate of approximately 2,841,000 gal in Lagoons 1, 2, 4 and 5. Requires the use of one 300 GPM pump operating 24 hrs/day for 1 week to remove initial volume. Assumes no immediate ground water recharge. During construction, figure standing water will need to be removed approximately once per month to account for slow ground water recharge and precipitation accumulation. Dewatering of standing water assumed to be above the water table. See applicable Common Cost Sub-Element Worksheet for quantities and unit costs.

*Collection & Treatment of Standing Water in Lagoons:* Will treat standing water in lagoons using eight Carbon Adsorption units. Each unit consists of two vessels containing 1,000 lbs of carbon/vessel; 2,000 lbs of carbon assumed to treat 100,000 gallons. Fractionation tanks (20,000 gal/tank) will be needed to store untreated water. Discharge of treated water will occur onsite through two infiltration galleries assumed to be 20' x 5' x 5' and consisting of geotextile and riprap. Analytical testing will be conducted prior to initial discharge to ensure proper treatment.

*Continuous Cleanup:* Cleanup of site during construction activities – 1 laborer.

*Site Restoration:* Estimate from previous project. Costs to remove concrete structures, repair access roads, and clean up debris.



3. Excavation/Consolidation of Berms:

*Excavation:* Estimate includes excavating approximately 11,587 CY of berm material between Lagoons 1 and 5 and between Lagoons 1 and 5 and the Hoosic River to ground elevation of 505' (5 vertical feet of material), loading the material onto trucks and transporting it to a location within the cap footprint. Assuming excavation rate of 80 CY/hr using two excavators. Quantity of excavated material padded by 20%. Other costs include truck bed liners (2 liners/day) and covers (1 cover/day). Excavation assumed to be above the ground water table. Operation assumed to occur under Level D conditions.

*Consolidation:* Placing excavated material within cap footprint. Unit cost includes spreading and compaction of material.

*Replace berms with clean fill:* Unit cost includes placing unclassified fill, in 6" lifts, from off-site source that includes delivery, spreading and compaction. Riprap will be installed along the side of berm abutting the Hoosic River to add stabilization.

4. Cover:

Cap components, according to VT Solid Waste (Subchapter 6) Final Cover, from base to top: 6" subgrade, 12" sand layer, geotextile, 24" low hydraulic conductivity clay layer, 12" gas collection layer, geotextile, 26" vegetative support layer and 6" of topsoil. Top of landfill sloped 5% to 7%; sideslopes maximum of 3:1. Area of cap = 6.4 acres.

*Decontamination of Heavy Equipment:* Includes decontamination of 8 pieces of equipment, once/day during initial site work, excavation and capping.

*Operation of Trash Pump:* Cost to operate a trash pump for decontamination over period of initial site work, excavation and capping. See Common Cost Sub-Element Worksheet for decontamination of heavy equipment.

*Backfill with Common Fill - Subgrade:* Unit cost from Means that includes sand, loaded at the pit and dumped onsite. Price includes localization factor and markups for overhead and profit.

*Sand Layer:* Thickness of sand layer taken as 12" over an approximate area of 6.4 acres increased by 30% to account for side slopes. Sand ton = 6.4 acres x 1 ft x 30% increase x 1.5 TONS/CY = approx. 20,000 tons.

*Geosynthetics:* Two layers of geotextile installed over an area of 6.4 acres.

*Gas Collection Layer:* Thickness of gas collection layer taken as 12" over an approximate area of 6.4 acres increased by 30% to account for side slopes. Sand ton = 6.4 acres x 1 ft x 30% increase x 1.5 TONS/CY = approx. 20,000 tons. Gas venting wells costed by assuming 1 gas vent/ACRE at \$1,500/vent based on engineering judgment and experience.

*Clay 10E-7, 6" lifts, off-site:* Unit cost from Means. Includes installation of clay layer in 6" lifts, clay material from an offsite location

*Granular Vegetative Layer (Sand):* 26" layer of vegetative support soil over 6.4 acres. Area increased by 30% to account for side slopes. Layers to be placed in lifts of 6" and in-place density testing completed at a rate of 1 test/acre/lift. Approximate area of cap for testing ~ 8.6 acres, 4 lifts/acre. Sand ton = 6.4 acres x 1.3 x 2.2ft x 1.5 TONS/CY = approx. 44,000 tons.

*Topsoil:* 6" layer of topsoil over an approximate 6.4 acres increased by 30% to account for side slopes. Topsoil ton= 1.5 CY/TON x 6700 CY = approx. 10,000 tons.

*Geotechnical Testing of Soil Materials:* Grain size analysis at a rate of 1 test/500 tons of material for gas collection layer, granular drainage layer and topsoil.

*Drainage Structures:* Estimate of material required to build drainage structures for landfill cap assuming drainage swale around perimeter of cap footprint (approx. 3,000 LF) width of 10' and depth of 2', consisting of 10 to 100 lb riprap over nonwoven geotextile. An allowance for two heavy stone riprap areas of ~200 sf were assumed for construction of heavy drainage outlet structures.

*Erosion Control Blankets:* Installation of blankets over cap area of 6.4 acres. Unit cost from Means.

*Seeding/Mulch/Fertilizer:* Application over cap area of 6.4 acres. Unit cost from Means.

*Land Use Restriction:* See hourly breakdown and rates included with applicable Common Cost Sub-Element Worksheets.

*Wetland Mitigation:* Assuming 1:1 replacement of 2.4 acres of wetlands with locations of recreated wetland areas to be determined at the design stage.

Alternative 3

## VT SUBCHAPTER 6 FINAL COVER

## COST ESTIMATE SUMMARY

Site: Pownal Tannery Site  
 Location: Pownal, VT  
 Phase: Feasibility Study  
 Base Year: 2001  
 Date: Apr-01

Description: Alternative 3 consists of capping of waste in place, with land use restrictions. Capital costs occur in Year 0. Annual costs occur in Years 1-6. Periodic costs occur every 5 yrs for a 30 year period.

## CAPITAL COSTS:

DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	NOTES
<b>Mobilization / Demobilization</b>					
Construction Equipment	2	LS	\$1,765.48	\$3,531	Excavators, loaders, etc.
Submittals/Implementation Plans	1	LS	\$100,985.69	\$100,986	
Temporary Facilities & Utilities	1	LS	\$56,919.51	\$56,920	
Field Office Supplies	1	LS	\$14,519.33	\$14,519	
Post-Construction Submittals	1	LS	\$29,481.95	\$29,482	Post-construction report
<b>SUBTOTAL</b>				<b>\$205,437</b>	
<b>Site Work</b>					
General Equipment	1	LS	\$31,027.44	\$31,027	
Continuous Air Monitoring	6	MO	\$5,120.17	\$30,721	
Clearing/Grubbing	1	LS	\$13,240.67	\$13,241	
Well Abandonment/Replacement	7	EA	\$5,775.00	\$40,425	
Surveying	48	DAY	\$1,709.40	\$82,051	2-man crew
Erosion/Dust Control Measures	1	LS	\$25,946.32	\$25,946	
Access Roads	22	100 LF	\$1,657.30	\$36,461	Roads around perimeter of Lag 1,3, & 5
Perimeter Fence	1	LS	\$159,898.20	\$159,898	
Backfill Lagoon 2	1	LS	\$506,827.00	\$506,827	
Decontamination Structure - Heavy Eq	2	LS	\$29,360.54	\$58,721	
Decontamination Structure - Personnel	2	EA	\$311.13	\$622	
Dewater Standing Water in Lagoons	1.5	WK	\$9,940.27	\$14,910	
Collect and Treat Standing Water	2.5	WK	\$123,528.43	\$308,821	
Decon. Frac Tank	20	EA	\$1,000.00	\$20,000	
Continuous Cleanup	20	MWK	\$819.22	\$16,384	
Site Restoration	1	LS	\$5,000.00	\$5,000	
<b>SUBTOTAL</b>				<b>\$1,351,057</b>	
<b>Excavation/Consolidation of Berms</b>					
Excavation	1	LS	\$108,248.29	\$108,248	
Consolidate under cap	13,904	CY	\$0.96	\$13,310	
Replace berms with clean fill	1	LS	\$528,734.33	\$528,734	
<b>SUBTOTAL</b>				<b>\$650,293</b>	
<b>Cover</b>					
Decontamination of Heavy Equipment	720	EA	\$220.44	\$158,714	Means including O&P and localization factor
Operation of Trash Pump	90	DAY	\$156.91	\$14,122	
Backfill w common fill - subgrade	6,195	CY	\$21.01	\$130,132	
Sand Layer	1	LS	\$324,125.75	\$324,126	
Gas Collection Layer	1	LS	\$332,580.78	\$332,581	
Geosynthetics	1	LS	\$139,531.25	\$139,531	
Clay 10E-7, 6" lifts, Off-site	26,846	CY	\$15.99	\$429,230	Localized with O&P included
Vegetative Support Layer	1	LS	\$700,978.35	\$700,978	
Topsoil	1	LS	\$229,123.78	\$229,124	
Geotechnical Testing of Soil Materials	148	EA	\$142.96	\$21,020	Soil Tests/500 tons of material, Grain Size
Drainage Structures	1	LS	\$54,585.02	\$54,585	
Erosion Control Blankets	40,269	SY	\$1.12	\$45,221	
Seeding/Mulch/Fertilizer	40,269	SY	\$1.37	\$55,229	
<b>SUBTOTAL</b>				<b>\$2,634,593</b>	
<b>Land Use Restrictions</b>					
Land Use Restriction	1	LS	\$31,882.62	\$31,883	
Wetland Compensation	3	ACRE	\$46,200.00	\$138,600	
<b>SUBTOTAL</b>				<b>\$170,483</b>	
<b>SUBTOTAL</b>				<b>\$5,011,863</b>	
Contingency (Scope & Bid)	25%			\$1,252,965.78	
<b>SUBTOTAL</b>				<b>\$6,264,829</b>	
Project Management	5%			\$313,241	
Remedial Design	8%			\$501,186	
Construction Management	6%			\$375,890	
Institutional Controls	-			\$31,883	Land use restrictions

## TOTAL CAPITAL COST:

**\$7,487,029**

Alternative 3  
VT SUBCHAPTER 6 FINAL COVER

**COST ESTIMATE SUMMARY**

Site: Pownal Tannery Site  
Location: Pownal, VT  
Phase: Feasibility Study  
Base Year: 2001  
Date: Apr-01

Description: Alternative 3 consists of capping of waste in place, with land use restrictions. Capital costs occur in Year 0. Annual costs occur in Years 1-6. Periodic costs occur every 5 yrs for a 30 year period.

**ANNUAL O&M COSTS (Year 1):**

DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	NOTES
<b>Site Monitoring</b>					
Cap Inspections	2	EA	\$3,000.00	\$6,000	
Mowings (2/year)	227	MSF	\$2.84	\$940	Lawn, riding mower, 48" - 58"; Including O&P
Groundwater Sampling - Equipment and Labor	4	EA	\$32,771.92	\$131,088	
Groundwater Analysis - VOCs, SVOCs, Metals	60	EA	\$2,000.00	\$120,000	12 locations, quarterly; inc 3 QA/QC Samples
Groundwater Analysis - Dioxins	14	EA	\$750.00	\$10,500	Quarterly; inc 2 QA/QC Samples
Sediment Sampling - Equipment and Labor	1	EA	\$6,364.10	\$6,364	
Sediment Analysis - VOCs, SVOCs, Metals	7	EA	\$1,100.00	\$7,700	4 locations, annually; inc 3 QA/QC Samples
Sediment Analysis - Dioxins	5	EA	\$800.00	\$4,000	1 QA/QC
SUBTOTAL				\$286,592	
<b>Professional/Technical Support</b>					
O&M Technical Report			15%	\$42,989	
O&M Oversight			5%	\$14,330	
SUBTOTAL				\$343,911	
Contingency			10%	\$34,391	
<b>TOTAL ANNUAL O&amp;M COST (Year 1)</b>				<b>\$378,302</b>	

**ANNUAL O&M COSTS (Years 2-3):**

DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	NOTES
<b>Site Monitoring</b>					
Cap Inspections	1	EA	\$3,000.00	\$3,000	
Mowings (2/year)	227	MSF	\$2.84	\$940	Lawn, riding mower, 48" - 58"
Groundwater Sampling - Equipment and Labor	2	EA	\$32,771.92	\$65,544	
Groundwater Analysis - VOCs, SVOCs, Metals	30	EA	\$2,000.00	\$60,000	12 locations, semi; inc 3 QA/QC Samples
Groundwater Analysis - Dioxins	14	EA	\$750.00	\$10,500	Annually; inc 2 QA/QC Samples
Sediment Sampling - Equipment and Labor	1	EA	\$6,364.10	\$6,364	
Sediment Analysis - VOCs, SVOCs, Metals	7	EA	\$1,100.00	\$7,700	4 locations, annual; inc 3 QA/QC Samples
Sediment Analysis - Dioxins	5	EA	\$800.00	\$4,000	1 QA/QC
SUBTOTAL				\$158,048	
<b>Professional/Technical Support</b>					
O&M Technical Report			15%	\$23,707	
O&M Oversight			5%	\$7,902	
SUBTOTAL				\$189,658	
Contingency			10%	\$18,966	
<b>TOTAL ANNUAL O&amp;M COST (Years 2-3)</b>				<b>\$208,624</b>	

**ANNUAL O&M COSTS (Years 4-6):**

DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	NOTES
<b>Site Monitoring</b>					
Cap Inspections	1	EA	\$3,000.00	\$3,000	
Mowings (2/year)	227	MSF	\$2.84	\$940	Lawn, riding mower, 48" - 58"
Groundwater Sampling - Equipment and Labor	1	EA	\$32,771.92	\$32,772	
Groundwater Analysis	15	EA	\$2,000.00	\$30,000	12 locations, annual; inc 3 QA/QC Samples
Groundwater Analysis - Dioxins	14	EA	\$750.00	\$10,500	Inc 2 QA/QC Samples
Sediment Sampling - Equipment and Labor	1	EA	\$6,364.10	\$6,364	
Sediment Analysis - VOCs, SVOCs, Metals	7	EA	\$1,100.00	\$7,700	4 locations, annual; inc 3 QA/QC Samples
Sediment Analysis - Dioxins	5	EA	\$800.00	\$4,000	1 QA/QC
SUBTOTAL				\$95,277	
<b>Professional/Technical Support</b>					
O&M Technical Report			15%	\$14,291	
O&M Oversight			5%	\$4,764	
SUBTOTAL				\$114,332	
Contingency			10%	\$11,433	
<b>TOTAL ANNUAL O&amp;M COST (Years 4-6)</b>				<b>\$125,765</b>	

Alternative 3

## VT SUBCHAPTER 6 FINAL COVER

## COST ESTIMATE SUMMARY

Site: Pownal Tannery Site  
 Location: Pownal, Vt  
 Phase: Feasibility Study  
 Base Year: 2001  
 Date: Apr-01

Description: Alternative 3 consists of capping of waste in place, with land use restrictions. Capital costs occur in Year 0. Annual costs occur in Years 1-6. Periodic costs occur every 5 yrs for a 30 year period.

## PERIODIC COSTS:

DESCRIPTION	YR	QTY	UNIT	UNIT COST	TOTAL	NOTES
Perimeter Fence Repairs	5	1	EA	\$7,994.91	\$7,994.91	5% of installation cost
Cap, Erosion, Seeding Repairs	5	1	EA	\$65,864.83	\$65,864.83	2.5% of cap installation
Five Year Report	5	1	EA	\$12,000.00	\$12,000.00	
Update Institutional Controls	5	1	EA	\$3,000.00	\$3,000.00	
					\$88,859.74	
Perimeter Fence Repairs	10-30	1	EA	\$7,994.91	\$7,994.91	5% of installation cost
Cap, Erosion, Seeding Repairs	10-30	1	EA	\$39,518.90	\$39,518.90	1.5% of cap installation
Five Year Report	10-30	1	EA	\$12,000.00	\$12,000.00	
Update Institutional Controls	10-30	1	EA	\$3,000.00	\$3,000.00	
					\$62,513.81	

## PRESENT VALUE ANALYSIS:

COST TYPE	YEAR	TOTAL COST	TOTAL COST/YR	DISCOUNT FACTOR	PRESENT VALUE	NOTES
Capital Cost	0	\$7,558,862	\$7,487,029	-	-	See support sheet for discount factors and Present Value calculation
Annual O&M Cost	1	\$378,302	\$378,302	-	-	
Annual O&M Cost	2-3	\$417,248	\$208,824	-	-	
Annual O&M Cost	4-6	\$377,295	\$125,765	-	-	
Periodic Cost	5	\$92,034	\$88,860	-	-	Remedial Action Report
Periodic Cost	10	\$65,688	\$62,514	-	-	
Periodic Cost	15	\$65,688	\$62,514	-	-	
Periodic Cost	20	\$65,688	\$62,514	-	-	
Periodic Cost	25	\$65,688	\$62,514	-	-	
Periodic Cost	30	\$65,688	\$62,514	-	-	

TOTAL PRESENT VALUE OF ALTERNATIVE

\$8,409,893

Alternative 3

## VT SUBCHAPTER 6 FINAL COVER

## PRESENT VALUE ANALYSIS

Site: Pownal Tannery Site  
 Location: Pownal, Vt  
 Phase: Feasibility Study  
 Base Year: 2001  
 Date: Apr-01

Description: Alternative 3 consists of capping of waste in place with land use restrictions. Capital costs occur in Year 0. Annual costs occur in Years 1-6. Periodic costs occur every 5 yrs for 30 years.

Year	Capital Costs (\$)	Annual O&M Costs (\$)	Periodic Costs (\$)	Total Costs (\$)	Discount Factor at 7%	Total Present Value Cost at 7% (\$)
0	\$7,280,862	\$0		\$7,280,862	1.000	\$7,280,862
1		\$378,302		\$378,302	0.935	\$353,712
2		\$208,624		\$208,624	0.873	\$182,129
3		\$208,624		\$208,624	0.816	\$170,237
4		\$125,765		\$125,765	0.763	\$95,959
5		\$125,765	\$88,860	\$214,625	0.713	\$153,027
6		\$125,765		\$125,765	0.666	\$83,759
7				\$0	0.623	\$0
8				\$0	0.582	\$0
9				\$0	0.544	\$0
10			\$62,514	\$62,514	0.508	\$31,757
11				\$0	0.475	\$0
12				\$0	0.444	\$0
13				\$0	0.415	\$0
14				\$0	0.388	\$0
15			\$62,514	\$62,514	0.362	\$22,630
16				\$0	0.339	\$0
17				\$0	0.317	\$0
18				\$0	0.296	\$0
19				\$0	0.277	\$0
20			\$62,514	\$62,514	0.258	\$16,129
21				\$0	0.242	\$0
22				\$0	0.226	\$0
23				\$0	0.211	\$0
24				\$0	0.197	\$0
25			\$62,514	\$62,514	0.184	\$11,503
26				\$0	0.172	\$0
27				\$0	0.161	\$0
28				\$0	0.150	\$0
29				\$0	0.141	\$0
30			\$62,514	\$62,514	0.131	\$8,189

TOTAL PRESENT VALUE OF ALTERNATIVE

\$8,409,893

Site: Pownal Tannery Site  
 Location: Pownal, Vt  
 Phase: Feasibility Study  
 Base Year: 2001  
 Date: Apr-01

**Work Statement:**

Mobilization and demobilization costs for large equipment.

**Cost Analysis:**

DESCRIPTION (Means)	QTY	UNIT	LABOR	EQUIP	MTRL	UNIT TOTAL	TOTAL
Dozer	2	EA	-	\$274	-	\$274	\$548.00
Backhoe/FE Loader	1	EA	-	\$274	-	\$274	\$274.00
Excavator	2	EA	-	\$274	-	\$274	\$548.00
Loader	1	EA	-	\$274	-	\$274	\$274.00
Roller	1	EA	-	\$274	-	\$274	\$274.00
							<u>\$1,918.00</u>
Area Cost Factor						69%	\$1,323.42
Subcontractor Overhead						5%	\$66.17
SUBTOTAL							<u>\$1,389.59</u>
Subcontractor Profit						10%	\$138.96
SUBTOTAL							<u>\$1,528.55</u>
Contractor Overhead						5%	\$76.43
SUBTOTAL							<u>\$1,604.98</u>
Contractor Profit						10%	\$160.50
TOTAL UNIT COST							<u><u>\$1,765.48</u></u>

**Source of Cost Data:**

Building Construction Cost Data, RS Means, 58th Edition, 2000

**Cost Adjustment Factor:**

FACTOR:  
 H&S Productivity (labor & equip) ☐  
 Escalation to Base Year ☐  
 Area Cost Factor ☒  
 Subcontractor Overhead & Prof. ☒  
 Prime Contractor Overhead & Prof. ☒

NOTES:  
 Not Applicable  
 Escalation Factor of 1.00 for base year of 2001, cost information 2000  
 0.69 localization factor for 052 zip code (Means)  
 Assuming markup of 10% each for both Overhead and Profit.  
 Assuming markup of 10% each for both Overhead and Profit.

Common costs  
Capital Cost Sub-Element  
**SUBMITTALS & IMPLEMENTATION PLANS**

**COST WORKSHEET**

**Site:** Pownal Tannery Site  
**Location:** Pownal, Vt  
**Phase:** Feasibility Study  
**Base Year:** 2001  
**Date:** Apr-01

**Work Statement:**

Preconstruction submittals are assumed to include health and safety plan, construction QA/QC plan and spill prevention plan.

**Cost Analysis:**

DESCRIPTION	QTY	UNIT	LABOR	EQUIP	MTRL	UNIT TOTAL	TOTAL
Engineering							
Permitting	320	HR	\$75.00	\$0.00	\$0.00	\$75.00	\$24,000.00
Design	480	HR	\$75.00	\$0.00	\$0.00	\$75.00	\$36,000.00
Meetings	100	HR	\$75.00	\$0.00	\$0.00	\$75.00	\$7,500.00
Office Support							
Support staff	80	HR	\$40.00	\$0.00	\$0.00	\$40.00	\$3,200.00
Office Expenses	1	LS	\$0.00	\$0.00	\$5,000.00	\$5,000.00	\$5,000.00
<b>SUBTOTAL</b>							<b>\$75,700.00</b>
Subcontractor Overhead						5%	\$3,785.00
<b>SUBTOTAL</b>							<b>\$79,485.00</b>
Subcontractor Profit						10%	\$7,948.50
<b>SUBTOTAL</b>							<b>\$87,433.50</b>
Contractor Overhead						5%	\$4,371.68
<b>SUBTOTAL</b>							<b>\$91,805.18</b>
Contractor Profit						10%	\$9,180.52
<b>TOTAL UNIT COST</b>							<b>\$100,985.69</b>

**Source of Cost Data:**

Engineering judgement



Alternative 3

Capital Cost Sub-Element

## TEMPORARY FACILITIES AND UTILITIES

## COST WORKSHEET

Site: Pownal Tannery Site

Location: Pownal, VT

Phase: Feasibility Study

Base Year: 2001

Date: Apr-01

## Work Statement:

Assuming onsite construction time of 23.2 weeks at 4 weeks/month. Install additional power poles to lagoon area;  
1 pole/150' over an approximate distance of 200 yds.

## Cost Analysis:

DESCRIPTION (Local)	QTY	UNIT	LABOR	EQUIP	MTRL	UNIT TOTAL	TOTAL
Mob/Demob Temporary Storage Trailer (2 units)	2	EA	-	-	-	\$340	\$680.00
Temporary Storage Trailer (2 units)	12.00	MO	-	-	-	\$150	\$1,800.00
Temporary Fencing	1,650	LF	-	-	-	6.90	\$11,385.00
Portable Toilets - Chemical (3 units)	18.00	MO	-	-	-	\$75	\$1,350.00
Mob/Demob Temporary Office with steps (2 Units)	2	EA	-	-	-	\$430	\$860.00
Temporary Office with steps (2 Units)	12.00	MO	-	-	-	\$540	\$6,480.00
Install power poles (price for 2 poles)	2	EA	-	-	-	\$2,847	\$5,694.00
Utility connection/disconnection	1	EA	\$0	\$0	\$2,000	\$2,000	\$2,000.00
Utilities (phone and electric)	6.00	MO	\$0	\$0	\$500	\$500	\$3,000.00
SUBTOTAL - Local							\$33,249.00
DESCRIPTION (Means)	QTY	UNIT	LABOR	EQUIP	MTRL	TOTAL	TOTAL
Decontamination Trailer	6.00	MO	\$0	\$0	\$2,275	\$2,275	\$13,650.00
Area Cost Factor						69%	\$9,418.50
SUBTOTAL (Local and Means)							\$42,667.50
Subcontractor Overhead						5%	\$2,133.38
SUBTOTAL							\$44,800.88
Subcontractor Profit						10%	\$4,480.09
SUBTOTAL							\$49,280.96
Contractor Overhead						5%	\$2,464.05
SUBTOTAL							\$51,745.01
Contractor Profit						10%	\$5,174.50
TOTAL UNIT COST							\$56,919.51

## Source of Cost Data:

Environmental Remediation Cost Data, RS Means, 6th Edition, 2000

Local unit costs from an ongoing project.

## Cost Adjustment Factor:

FACTOR:	
H&S Productivity (labor & equip)	<input type="checkbox"/>
Escalation to Base Year	<input type="checkbox"/>
Area Cost Factor	<input checked="" type="checkbox"/>
Subcontractor Overhead & Prof.	<input checked="" type="checkbox"/>
Prime Contractor Overhead & Prof.	<input checked="" type="checkbox"/>

## NOTES:

Not Applicable

Escalation Factor of 1.00 for base year of 2001, cost information 2000

0.69 localization factor for 052 zip code (Means)

Assuming markup of 10% each for both Overhead and Profit.

Assuming markup of 10% each for both Overhead and Profit.

Common Costs  
Capital Cost Sub-Element  
**FIELD OFFICE SUPPLIES**

**COST WORKSHEET**

Site: Pownal Tannery Site  
Location: Pownal, Vt  
Phase: Feasibility Study  
Base Year: 2001  
Date: Apr-01

**Work Statement:**

Purchase miscellaneous field office supplies.

**Cost Analysis:**

DESCRIPTION	QTY	UNIT	LABOR	EQUIP	MTRL	UNIT TOTAL	TOTAL	
<b>Office Supplies</b>								
Cordless phone with answering machine	2	EA	\$0.00	\$0.00	\$90.00	\$90.00	\$180.00	
Computer	2	MO	\$0.00	\$0.00	\$480.00	\$480.00	\$960.00	\$40/MO for 6Mo
Surge Protectors	2	EA	\$0.00	\$0.00	\$28.49	\$28.49	\$56.98	
Floppy disks	2	PACK	\$0.00	\$0.00	\$9.99	\$9.99	\$19.98	40/PACK
Printer/fax/copier	1	EA	\$0.00	\$0.00	\$199.97	\$199.97	\$199.97	
HP Printer toner	20	EA	\$0.00	\$0.00	\$29.99	\$29.99	\$599.80	
Standard Task Chair	5	EA	\$0.00	\$0.00	\$119.75	\$119.75	\$598.75	
Standard Folding Chair	5	CARTON	\$0.00	\$0.00	\$77.35	\$77.35	\$386.75	5/CARTON
Shelving	2	EA	\$0.00	\$0.00	\$317.50	\$317.50	\$635.00	H74xW36xD21
Folding Tables - Heritage Series	2	EA	\$0.00	\$0.00	\$102.15	\$102.15	\$204.30	H29xW30xL96
Pens	10	PACK	\$0.00	\$0.00	\$3.89	\$3.89	\$38.90	60/PACK
Paper	20	CASE	\$0.00	\$0.00	\$20.99	\$20.99	\$419.80	5000/CASE
Pencils	10	PACK	\$0.00	\$0.00	\$3.19	\$3.19	\$31.90	48/PACK
Highlighters	5	PACK	\$0.00	\$0.00	\$4.35	\$4.35	\$21.75	43/PACK
Notepads	10	EA	\$0.00	\$0.00	\$4.35	\$4.35	\$43.50	
Sharpies (thick)	25	EA	\$0.00	\$0.00	\$1.52	\$1.52	\$38.00	
Sharpies (Thin)	50	EA	\$0.00	\$0.00	\$0.79	\$0.79	\$39.50	
Stapler	4	EA	\$0.00	\$0.00	\$9.99	\$9.99	\$39.96	
Staples	2	BOX	\$0.00	\$0.00	\$2.99	\$2.99	\$5.98	1000/BOX
Staple remover	4	EA	\$0.00	\$0.00	\$0.69	\$0.69	\$2.76	
Scotch Tape	5	EA	\$0.00	\$0.00	\$1.22	\$1.22	\$6.10	
Paper clips	5	PACK	\$0.00	\$0.00	\$1.69	\$1.69	\$8.45	1000/PACK
Binder clips	5	PACK	\$0.00	\$0.00	\$3.55	\$3.55	\$17.75	60/PACK
Masking tape	5	PACK	\$0.00	\$0.00	\$5.29	\$5.29	\$26.45	4/PACK
Hanging folders	5	BOX	\$0.00	\$0.00	\$3.99	\$3.99	\$19.95	25/BOX
Manila folders	2	BOX	\$0.00	\$0.00	\$4.19	\$4.19	\$8.38	100/BOX
Scissors	4	PACK	\$0.00	\$0.00	\$16.25	\$16.25	\$65.00	2/PACK
Engineer's scale	5	EA	\$0.00	\$0.00	\$3.65	\$3.65	\$18.25	
Tacks	5	PACK	\$0.00	\$0.00	\$0.25	\$0.25	\$1.25	100/PACK
Post-it-notes (4"x6")	5	PACK	\$0.00	\$0.00	\$6.99	\$6.99	\$34.95	6/PACK
Post-it-notes (3"x4")	5	PACK	\$0.00	\$0.00	\$10.99	\$10.99	\$54.95	12/PACK
Post-it-notes (1.5"x2")	5	PACK	\$0.00	\$0.00	\$4.19	\$4.19	\$20.95	12/PACK
Mag-Lite Flashlight	5	EA	\$0.00	\$0.00	\$24.95	\$24.95	\$124.75	L=8.5"
Batteries (AA)	10	PACK	\$0.00	\$0.00	\$6.15	\$6.15	\$61.50	8/PACK
Batteries (AAA)	5	PACK	\$0.00	\$0.00	\$8.49	\$8.49	\$42.45	12/PACK
Batteries (C)	5	PACK	\$0.00	\$0.00	\$9.99	\$9.99	\$49.95	8/PACK
Soft Wastebaskets	4	EA	\$0.00	\$0.00	\$8.20	\$8.20	\$32.80	H19xW15xD11
55-gal Waste Containers	5	EA	\$0.00	\$0.00	\$62.95	\$62.95	\$314.75	
Paper towels	50	PACK	\$0.00	\$0.00	\$15.75	\$15.75	\$787.50	15/PACK
Trash bags	50	PACK	\$0.00	\$0.00	\$8.49	\$8.49	\$424.50	50/PACK
Broom	1	EA	\$0.00	\$0.00	\$9.19	\$9.19	\$9.19	
Dust pan	1	EA	\$0.00	\$0.00	\$5.15	\$5.15	\$5.15	
Disinfectant Cleaner	5	EA	\$0.00	\$0.00	\$6.59	\$6.59	\$32.95	
First Aid Kit	1	EA	\$0.00	\$0.00	\$26.10	\$26.10	\$26.10	
Emergency Eye Wash Station	1	EA	\$0.00	\$0.00	\$24.15	\$24.15	\$24.15	
Extension cord (50')	3	EA	\$0.00	\$0.00	\$19.90	\$19.90	\$59.70	
Locks (2")	10	EA	\$0.00	\$0.00	\$11.55	\$11.55	\$115.50	
Locks (3/4")	10	EA	\$0.00	\$0.00	\$8.25	\$8.25	\$82.50	
Shipping Allowance	1	LS	-	-	-	\$5,000.00	\$5,000.00	
<b>SUBTOTAL</b>							<b>\$11,999.45</b>	

Common Costs  
Capital Cost Sub-Element  
**FIELD OFFICE SUPPLIES**

## COST WORKSHEET

Subcontractor Profit	10%	\$1,200
SUBTOTAL		<u>\$13,199</u>
Prime Contractor Profit	10%	\$1,319.94
TOTAL UNIT COST		<u>\$14,519</u>

**Source of Cost Data:**

Equipment and supplies from local vendors.

**Cost Adjustment Factor:**

FACTOR:

H&S Productivity (labor & equip)	<input type="checkbox"/>
Escalation to Base Year	<input type="checkbox"/>
Area Cost Factor	<input type="checkbox"/>
Subcontractor Profit	<input checked="" type="checkbox"/>
Prime Contractor Profit	<input checked="" type="checkbox"/>

**NOTES:**

No labor involved, material costs

2001 material costs

No area cost factor applied; Not applicable

Assuming markup of 10%

Assuming markup of 10%

Common costs  
Capital Cost Sub-Element  
POST-CONSTRUCTION SUBMITTALS

## COST WORKSHEET

Site: Pownal Tannery Site  
Location: Pownal, Vt  
Phase: Feasibility Study  
Base Year: 2001  
Date: Apr-01

Work Statement:

Cost Analysis:

DESCRIPTION	QTY	UNIT	LABOR	EQUIP	MTRL	UNIT TOTAL	TOTAL
Engineering	240	HR	\$75.00	\$0.00	\$0.00	\$75.00	\$18,000.00
Office Support							
Support staff	40	HR	\$40.00	\$0.00	\$0.00	\$40.00	\$1,600.00
Office Expenses	1	LS	\$0.00	\$0.00	\$2,500.00	\$2,500.00	\$2,500.00
SUBTOTAL							\$22,100.00
Subcontractor Overhead						5%	\$1,105.00
SUBTOTAL							\$23,205.00
Subcontractor Profit						10%	\$2,320.50
SUBTOTAL							\$25,525.50
Contractor Overhead						5%	\$1,276.28
SUBTOTAL							\$26,801.78
Contractor Profit						10%	\$2,680.18
TOTAL UNIT COST							\$29,481.95

Source of Cost Data:  
Engineering judgement

Alternative 3  
Capital Cost Sub-Element  
**SITE GENERAL EQUIPMENT & SUPPLIES**

# **COST WORKSHEET**

Site: Pownal Tannery Site  
Location: Pownal, Vt  
Phase: Feasibility Study  
Base Year: 2001  
Date: Apr-01

**Work Statement:**

Assuming total time onsite of approx 6 months: 4 wks mob/demob; 3 wks site prep; 2 wks excavation; 12 wks capping; 2 wks site restoration; 8 wks wetlands restoration (5 wks concurrent with other tasks).

**Cost Analysis:**

DESCRIPTION (Local)	QTY	UNIT	LABOR	EQUIP	MTRL	UNIT TOTAL	TOTAL
Construction Signs	4	EA	\$0.00	\$0.00	\$82.80	\$82.80	\$331.20
Install/Remove Dumpsters	2	EA	-	-	-	\$100.00	\$200.00
Dumpsters (2 Units)	12.00	MO	-	-	-	\$30.00	\$360.00
Install/Remove Water Coolers	2	EA	-	-	-	\$100.00	\$200.00
Water Cooler (2 Units)	12.00	MO	-	-	-	\$125.00	\$1,500.00
<b>SUBTOTAL</b>							<b>\$2,591.20</b>

DESCRIPTION (Means)	QTY	UNIT	LABOR	EQUIP	MTRL	TOTAL	TOTAL
SUV Rental	6.00	MO	\$0.00	\$0.00	\$720.00	\$720.00	\$4,320.00
Pickup Truck Rental	6.00	MO	\$0.00	\$0.00	\$720.00	\$720.00	\$4,320.00
Generator 250KW	6.00	MO	\$0.00	\$3,000.00	\$0.00	\$3,000.00	\$18,000.00
<b>SUBTOTAL</b>							<b>\$26,640.00</b>

Area Cost Factor 69% \$18,381.60

**SUBTOTAL (Local & Means)** \$20,973

Subcontractor Overhead 5% \$1,049

**SUBTOTAL** \$22,021.44

Subcontractor Profit 10% \$2,202.14

**SUBTOTAL** \$24,223.58

DESCRIPTION (Subcontractor Costs)	QTY	UNIT	LABOR	EQUIP	MTRL	TOTAL	TOTAL
Weather Station	6.00	MO	\$0.00	\$0.00	\$360.00	\$360.00	\$2,160.00
Camera	24	WK	\$0.00	\$0.00	\$5.00	\$5.00	\$120.00
Tool Box	6.00	MO	\$0.00	\$0.00	\$60.00	\$60.00	\$360.00
							<b>\$2,640.00</b>

**SUBTOTAL (Local, Means & Sub)** \$26,863.58

Contractor Overhead 5% \$1,343.18

**SUBTOTAL** \$28,206.76

Contractor Profit 10% \$2,820.68

**TOTAL UNIT COSTS** **\$31,027**

**Source of Cost Data:**

Local vendor and costs from internal ongoing projects.  
Building Construction Cost Data, RSMeans, 58th Edition, 2000

**Cost Adjustment Factor:**

FACTOR:  
H&S Productivity (labor & equip) ☐  
Escalation to Base Year ☐  
Area Cost Factor ☒  
Subcontractor Overhead & Prof. ☒  
Prime Contractor Overhead & Prof. ☒

**NOTES:**

For Level B - 42% Labor and 60% Equipment; not applicable  
Escalation Factor of 1.00 for base year of 2001, cost information 2000  
0.69 localization factor for 052 zip code (Means)  
Assuming markup of 10% each for both Overhead and Profit.  
Assuming markup of 10% each for both Overhead and Profit.

COMMON COST  
Capital Cost Sub-Element  
CONTINUOUS AIR MONITORING

COST WORKSHEET

Site: Pownal Tannery Site  
Location: Pownal, Vt  
Phase: Feasibility Study  
Base Year: 2001  
Date: Apr-01

Work Statement:

Continuous air monitoring around site perimeter at 8 hrs/day and 5 days/wk. Conducted during full implementation of each alternative.

Cost Analysis:

DESCRIPTION (Local)	QTY	UNIT	LABOR	EQUIP	MTRL	UNIT TOTAL	TOTAL
Flame-ionization detector - Rent	1	MO	\$0.00	\$0.00	\$640.00	\$640.00	\$640.00
Cal-gas	1	EA	\$0.00	\$0.00	\$120.00	\$120.00	\$120.00
Industrial Scientific MG140 gas meter	1	MO	\$0.00	\$0.00	\$400.00	\$400.00	\$400.00
103L Cylinder of CO, H2S, O2, Pentane Cal gas	0.5	CYL	\$0.00	\$0.00	\$300.00	\$300.00	\$150.00
SUBTOTAL							\$1,310.00
Subcontractor Overhead						5%	\$65.50
SUBTOTAL							\$1,375.50
Subcontractor Profit						10%	\$137.55
SUBTOTAL							\$1,513.05
DESCRIPTION (Subcontractor)	QTY	UNIT	LABOR	EQUIP	MTRL	TOTAL	TOTAL
Walkie Talkies - Rent (3 pair)	1	MO	\$0.00	\$0.00	\$360.00	\$360.00	\$360.00
Miniram Aerosol Monitor (5 Units)	1	MO	\$0.00	\$0.00	\$360.00	\$360.00	\$360.00
Laborers (1 @ \$55/hr)	0.25	MO	\$8,800.00	\$0.00	\$0.00	\$8,800.00	\$2,200.00
SUBTOTAL							\$2,920.00
SUBTOTAL (Local and Subcontractor)							\$4,433
Contractor Overhead						5%	\$221.65
SUBTOTAL							\$4,654.70
Contractor Profit						10%	\$465.47
TOTAL UNIT COST/MO							\$5,120.17

Source of Cost Data:

Costs for rental equipment from vendors.

Cost Adjustment Factor:

FACTOR:  
H&S Productivity (labor & equip) ☐  
Escalation to Base Year ☐  
Area Cost Factor ☐  
Subcontractor Overhead & Prof. ☒  
Prime Contractor Overhead & Prof. ☒

NOTES:

Level D

Escalation Factor of 1.00 for base year of 2001, cost information 2000

0.69 localization factor for 052 zip code (Means)

Assuming markup of 10% each for both Overhead and Profit.

Assuming markup of 10% each for both Overhead and Profit.

Alternative 3  
Capital Cost Sub-Element  
**CLEAR AND GRUB**

## COST WORKSHEET

Site: Pownal Tannery Site  
Location: Pownal, VT  
Phase: Feasibility Study  
Base Year: 2001  
Date: Apr-01

### Work Statement:

Clear and grub Lagoons 1,2,3 and 5 to facilitate excavation, consolidation and hauling. Material to be disposed of onsite.

### Cost Analysis:

DESCRIPTION	QTY	UNIT	LABOR	EQUIP	MTRL	UNIT TOTAL	TOTAL
Heavy Brush without Grub, Chipping	7.32	ACRE	\$909.73	\$1,055.00	\$0.00	\$1,964.73	\$14,384.57
SUBTOTAL							\$14,384.57
Area Cost Factor						69%	\$9,925.35
Subcontractor Overhead						5%	\$496.27
SUBTOTAL							\$10,421.62
Subcontractor Profit						10%	\$1,042.16
SUBTOTAL							\$11,463.78
Contractor Overhead						5%	\$573.19
SUBTOTAL							\$12,036.97
Contractor Profit						10%	\$1,203.70
TOTAL UNIT COST							\$13,240.67

### Source of Cost Data:

Environmental Remediation Cost Data, RS Means, 6th Edition, 2000

### Cost Adjustment Factor:

FACTOR:  
H&S Productivity (labor & equip) ☐  
Escalation to Base Year ☐  
Area Cost Factor ☒  
Subcontractor Overhead & Prof. ☒  
Prime Contractor Overhead & Prof. ☒

### NOTES:

Level D

Escalation Factor of 1.00 for base year of 2001, cost information 2000

0.69 localization factor for 052 zip code (Means)

Assuming markup of 10% each for both Overhead and Profit.

Assuming markup of 10% each for both Overhead and Profit.

Alternative 3  
Capital Cost Sub-Element  
**EROSION-DUST CONTROL**

**COST WORKSHEET**

Site: Pownal Tannery Site  
Location: Pownal, VT  
Phase: Feasibility Study  
Base Year: 2001  
Date: Apr-01

**Work Statement:**

Dust suppression/Pass cost at \$55.64/per acre using 3 acres; as needed application over period of excavation and cap construction - approx. 16 weeks at 5 days/wk and 1 pass/day. Silt fencing with hay bales installed along access road bordering river. See Sub-Cost Worksheet for breakdown. Trench excavation volume taken as 1800' x 2' x 0.5'.

**Cost Analysis:**

DESCRIPTION (Means)	QTY	UNIT	LABOR	EQUIP	MTRL	UNIT TOTAL	TOTAL
Watering Truck - dust suppression/Pass	90	PASS	\$0.00	\$0.00	\$0.00	\$166.89	\$15,020.10
Silt Fence, poly, 3' high, adverse conditions	1800	LF	\$0.37	\$0.00	\$0.30	\$0.67	\$1,206.00
Hay Bales, Staked	1800	LF	\$0.21	\$0.07	\$2.00	\$2.28	\$4,104.00
Place and Remove Hay Bales (maintenance)	22	TONS	\$178.00	\$57.50	\$50.00	\$285.50	\$6,281.00
Trench excavation, 6" depth	70	CY	\$2.73	\$1.35	\$0.00	\$4.08	\$285.60
Sedimentation traps	1	LS	\$0.00	\$0.00	\$0.00	\$965.12	\$965.12
<b>SUBTOTAL - Means</b>							<b>\$27,861.82</b>
Area Cost Factor						69%	\$19,225
DESCRIPTION (Local)	QTY	UNIT	LABOR	EQUIP	MTRL	TOTAL	TOTAL
Water	4.5	MO	\$0.00	\$0.00	\$0.00	\$50.00	\$225.00
<b>SUBTOTAL (Local and means)</b>							<b>\$19,450</b>
Subcontractor Overhead						5%	\$972
<b>SUBTOTAL</b>							<b>\$20,422</b>
Subcontractor Profit						10%	\$2,042
<b>SUBTOTAL</b>							<b>\$22,464</b>
Contractor Overhead						5%	\$1,123.22
<b>SUBTOTAL</b>							<b>\$23,588</b>
Contractor Profit						10%	\$2,359
<b>TOTAL UNIT COST</b>							<b>\$25,946.32</b>

**Source of Cost Data:**

Building Construction Cost Data, RS Means, 58th Edition, 2000; Local cost estimate from an ongoing project.  
Environmental Remediation Cost Data, RS Means, 6th Edition, 2000

**Cost Adjustment Factor:**

FACTOR:  
H&S Productivity (labor & equip) ☐  
Escalation to Base Year ☐  
Area Cost Factor ☒  
Subcontractor Overhead & Prof. ☒  
Prime Contractor Overhead & Prof. ☒

**NOTES:**  
Level D

Escalation Factor of 1.00 for base year of 2001, cost information 2000  
0.69 localization factor for 052 zip code (Means)  
Assuming markup of 10% each for both Overhead and Profit.  
Assuming markup of 10% each for both Overhead and Profit.



Common Cost  
Capital Cost Sub-Element  
**SEDIMENTATION TRAPS**

**COST WORKSHEET**

**Site:** Pownal Tannery Site  
**Location:** Pownal, VT  
**Phase:** Feasibility Study  
**Base Year:** 2001  
**Date:**

**Work Statement:**

Basin size of 50'x25'x6'. Inlet/Outlet structure dimensions approx 6'x6'x1.5'. Assuming 6" dia PE pipe.  
Marked up for O&P on erosion control cost worksheet.

**Cost Analysis:**

DESCRIPTION (Local)	QTY	UNIT	LABOR	EQUIP	MTRL	UNIT TOTAL	TOTAL
Geotextile non-woven	2.67	SY	\$0.00	\$0.00	\$0.00	\$1.50	\$4.00
1.5" Crushed Stone	10	TON	\$0.00	\$0.00	\$5.50	\$5.50	\$55.00
- Delivery	1	HR	\$0.00	\$0.00	\$0.00	\$40.00	\$40.00
<b>SUBTOTAL</b>							<b>\$99.00</b>

  

DESCRIPTION (Means)	QTY	UNIT	LABOR	EQUIP	MTRL	TOTAL	TOTAL
Excavation	278	CY	\$0.34	\$1.66	\$0.00	\$2.00	\$555.56
Rock Cover, Riprap, Heavy (25 to 500 lb)	6	CY	\$3.00	\$2.38	\$15.78	\$21.16	\$126.96
6" Diameter Polyvinyl Chloride Pipe	20	LF	\$1.72	\$4.59	\$2.87	\$9.18	\$183.60
							<b>\$866.12</b>
<b>SUBTOTAL</b>							<b>\$965.12</b>

**Source of Cost Data:**

Subcontractor estimate - geotextile installed, on 3/9/01. Soil estimates from local borrow source obtained on 2/27/01.  
Environmental Remediation Cost Data, RS Means, 6th Edition, 2000  
Building Construction Cost Data, RS Means, 58th Edition, 2000  
Marked up for O&P on element sheet for erosion control measures.

**Cost Adjustment Factor:**

**FACTOR:**  
H&S Productivity (labor & equip) ☐  
Escalation to Base Year ☐  
Area Cost Factor ☐  
Subcontractor Overhead & Prof. ☐  
Prime Contractor Overhead & Prof. ☐

**NOTES:**  
Level D  
Escalation Factor of 1.00 for base year of 2001, cost information 2000  
0.69 localization factor for 052 zip code (Means)  
Assuming markup of 10% each for both Overhead and Profit.  
Assuming markup of 10% each for both Overhead and Profit.

## Common Costs

Capital Cost Sub-Element

## TEMPORARY ACCESS ROADS (COST PER 100LF)

## COST WORKSHEET

Site: Pownal Tannery Site

Location: Pownal, Vt

Phase: Feasibility Study

Base Year: 2001

Date: Apr-01

## Work Statement:

Install temporary access roads for transport of excavated materials. 6 inches of crushed stone.

## Cost Analysis:

DESCRIPTION (Local)	QTY	UNIT	LABOR	EQUIP	MTRL	UNIT TOTAL	TOTAL
Common Fill - Subgrade	0	TON	\$0.00	\$0.00	\$3.00	\$3.00	\$0.00
Crushed Stone	48.1	TON	\$0.00	\$0.00	\$5.00	\$5.00	\$240.74
SUBTOTAL							\$240.74
DESCRIPTION (Means)	QTY	UNIT	LABOR	EQUIP	MTRL	TOTAL	TOTAL
Excavation of Fill at pit	0	CY	\$0.34	\$1.66	\$0.00	\$2.00	\$0.00
Loading of Fill at pit	0	CY	\$0.39	\$1.91	\$0.00	\$2.30	\$0.00
Hauling Fill, 10 mi round trip	0	CY	\$1.66	\$5.10	\$0.00	\$6.76	\$0.00
Excavation of ROC at pit	37	CY	\$0.34	\$1.66	\$0.00	\$2.00	\$74.07
Loading of ROC at pit	37	CY	\$0.39	\$1.91	\$0.00	\$2.30	\$85.19
Hauling ROC, 10 mi round trip	37	CY	\$1.66	\$5.10	\$0.00	\$6.76	\$250.37
Prepare and roll subbase, small area	222	SY	\$0.43	\$0.63	\$0.00	\$1.06	\$235.56
Spread/Compact ROC, 6" lifts	222	SY	\$0.31	\$0.59	\$0.00	\$0.90	\$200.00
Geotechnical	1	EA	\$67.67	\$0.00	\$86.98	\$154.65	\$154.65
SUBTOTAL							\$999.84
Area Cost Factor						69%	\$690
SUBTOTAL (Local and Means)							\$931
Subcontractor Overhead						5%	\$46.53
SUBTOTAL							\$977.16
Subcontractor Profit						10%	\$97.72
SUBTOTAL							\$1,074.87
DESCRIPTION (Subcontractor)	QTY	UNIT	LABOR	EQUIP	MTRL	TOTAL	TOTAL
In-Place Density (Means)	1	EA	\$0.00	\$0.00	\$0.00	\$26.68	\$26.68
Geotextile	222	SY	\$0.00	\$0.00	\$0.00	\$1.50	\$333.33
SUBTOTAL							\$360.02
SUBTOTAL (Local, Means and Sub)							\$1,434.89
Contractor Overhead						5%	\$71.74
SUBTOTAL							\$1,506.63
Contractor Profit						10%	\$150.66
TOTAL UNIT COST/100 LF							\$1,657.30

## Source of Cost Data:

Soil material quotes from local borrow source.

## Cost Adjustment Factor:

## FACTOR:

H&S Productivity (labor & equip) ☐Escalation to Base Year ☐Area Cost Factor ☒Subcontractor Overhead & Prof. ☒Prime Contractor Overhead & Prof. ☒

## NOTES:

Level D

Escalation Factor of 1.00 for base year of 2001, cost information 2000

0.69 localization factor for 052 zip code (Means)

Assuming markup of 10% each for both Overhead and Profit.

Assuming markup of 10% each for both Overhead and Profit.

Alternative 3  
Capital Cost Sub-Element  
PERIMETER FENCE

## COST WORKSHEET

Site: Pownal Tannery Site  
Location: Pownal, Vt  
Phase: Feasibility Study  
Base Year: 2001  
Date: Apr-01

### Work Statement:

Assuming completion time of 3 weeks. Remove existing fence around Lagoons 1 & 2; Construct fence around outside perimeter of Lagoons; Install fence post every 10' with concrete pads placed to a depth of 4' and having a 1' diameter.

### Cost Analysis:

DESCRIPTION	QTY	UNIT	LABOR	EQUIP	MTRL	UNIT TOTAL	TOTAL
Remove existing	1.40	2000 LF	-	-	-	\$40,000.00	\$56,000.00
7' Galvanized Chain-Link Fence	3000	LF	\$1.31	\$0.00	\$26.17	\$27.48	\$82,440.00
SUBTOTAL							\$138,440.00

Contractor Overhead	5%	\$6,922.00
SUBTOTAL		\$145,362.00
Contractor Profit	10%	\$14,536.20
TOTAL UNIT COST		\$159,898.20

### Source of Cost Data:

Building Construction Cost Data, RS Means, 58th Edition, 2000  
Environmental Remediation Cost Data, RS Means, 6th Edition, 2000

### Cost Adjustment Factor:

FACTOR:  
H&S Productivity (labor & equip) ☐  
Escalation to Base Year ☐  
Area Cost Factor ☒  
Subcontractor Overhead & Prof. ☒  
Prime Contractor Overhead & Prof. ☒

NOTES:  
Level D  
Escalation Factor of 1.00 for base year of 2001, cost information 2000  
0.69 localization factor for 052 zip code (Means)  
Assuming markup of 10% each for both Overhead and Profit.  
Assuming markup of 10% each for both Overhead and Profit.

## COMMON COST

Capital Cost Sub-Element

BACKFILL LAGOON 2

## COST WORKSHEET

Site: Pownal Tannery Site

Location: Pownal, Vt

Phase: Feasibility Study

Base Year: 2001

Date: Apr-01

## Work Statement:

In-place density at 1 Test/acre/6" lift over 10 ft corresponds to 20 lifts for roughly 2 acres.

## Cost Analysis:

DESCRIPTION (Local)	QTY	UNIT	LABOR	EQUIP	MTRL	UNIT TOTAL	TOTAL
Common Fill to Elev. 508'	30,976	TON	\$0.00	\$0.00	\$3.00	\$3.00	\$92,928.00
Gravel to Elev. 510' (1.5" crushed)	7,744	TON	\$0.00	\$0.00	\$5.50	\$5.50	\$42,592.00
							<u>\$135,520.00</u>

DESCRIPTION (Means)	QTY	UNIT	LABOR	EQUIP	MTRL	TOTAL	TOTAL
Excavation of Fill at pit	25,813	CY	\$0.34	\$1.66	\$0.00	\$2.00	\$51,626.67
Loading of Fill at pit	25,813	CY	\$0.39	\$1.91	\$0.00	\$2.30	\$59,370.67
Hauling Fill, 10 mi round trip	25,813	CY	\$1.66	\$5.10	\$0.00	\$6.76	\$174,498.13
Spreading in 8" layers, small dozer	25,813	CY	\$0.30	\$0.76	\$0.00	\$1.06	\$27,362.13
Compaction Fill, 6" to 12" lifts, vibrating roller	25,813	CY	\$0.40	\$1.15	\$0.00	\$1.55	\$40,010.67

SUBTOTAL							<u>\$352,868.27</u>
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Area Cost Factor						69%	<u>\$243,479</u>
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SUBTOTAL (Local and Means)							<u>\$378,999</u>
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Subcontractor Overhead						5%	<u>\$18,949.96</u>
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SUBTOTAL							<u>\$397,949.06</u>
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Subcontractor Profit						10%	<u>\$39,794.91</u>
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SUBTOTAL							<u>\$437,743.97</u>
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DESCRIPTION (Subcontractor)	QTY	UNIT	LABOR	EQUIP	MTRL	TOTAL	TOTAL
In-Place Density (Means)	40	EA	\$0.00	\$0.00	\$0.00	\$26.68	\$1,067.29

SUBTOTAL (Local, Means and Sub)							\$438,811.26
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Contractor Overhead						5%	<u>\$21,940.56</u>
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SUBTOTAL							<u>\$460,751.82</u>
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Contractor Profit						10%	<u>\$46,075.18</u>
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TOTAL UNIT COST							<u>\$506,827.00</u>
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## Source of Cost Data:

Local costs obtained from borrow source on 2/27/01.

Building Construction Cost Data, RS Means, 58th Edition, 2000

## Cost Adjustment Factor:

## FACTOR:

H&S Productivity (labor & equip) ☐Escalation to Base Year ☐Area Cost Factor ☒Subcontractor Overhead & Prof. ☒Prime Contractor Overhead & Prof. ☒

## NOTES:

Level D

Escalation Factor of 1.00 for base year of 2001, cost information 2000

0.69 localization factor for 052 zip code (Means)

Assuming markup of 10% each for both Overhead and Profit.

Assuming markup of 10% each for both Overhead and Profit.

## Common Costs

Capital Cost Sub-Element

## DECONTAMINATION PAD - HEAVY EQUIPMENT (PER EACH)

## COST WORKSHEET

Site: Pownal Tannery Site

Location: Pownal, Vt

Phase: Feasibility Study

Base Year: 2001

Date: Apr-01

## Work Statement:

Pad size 25 x 65; thickness of 8 inches.

## Cost Analysis:

DESCRIPTION	QTY	UNIT	LABOR	EQUIP	MTRL	UNIT TOTAL	TOTAL
<b>Construction:</b>							
Concrete pad - 8"	40	CY	\$78.00	\$0.98	\$116.00	\$194.98	\$7,823.27
Gravel base - 6"	30	CY	\$1.52	\$1.62	\$18.43	\$21.57	\$649.10
Curb	180	LF	\$0.68	\$0.00	\$1.06	\$1.74	\$313.20
Sump hole construction, incl ex & gravel, pit	75	CF	\$0.46	\$0.16	\$0.56	\$1.18	\$88.50
With 12" gravel collar, 12" pipe, corrugated, 16ga	180	LF	\$8.25	\$2.90	\$11.90	\$23.05	\$4,149.00
<b>SUBTOTAL</b>							<b>\$13,023.07</b>
Area Cost Factor						69%	\$8,986
<b>SUBTOTAL</b>							<b>\$22,009</b>
Subcontractor Overhead						5%	\$1,100.45
<b>SUBTOTAL</b>							<b>\$23,109.44</b>
Subcontractor Profit						10%	\$2,310.94
<b>SUBTOTAL</b>							<b>\$25,420.38</b>
Contractor Overhead						5%	\$1,271.02
<b>SUBTOTAL</b>							<b>\$26,691.40</b>
Contractor Profit						10%	\$2,669.14
<b>TOTAL UNIT COST</b>							<b>\$29,360.54</b>
<b>Operation:</b>							
4" Dia Contractor's Trash Pump, 300 GPM	1	DAY	\$10.41	\$0.00	\$59.19	\$69.60	\$69.60
Area Cost Factor						69%	\$48
<b>SUBTOTAL</b>							<b>\$118</b>
Subcontractor Overhead						5%	\$5.88
<b>SUBTOTAL</b>							<b>\$123.51</b>
Subcontractor Profit						10%	\$12.35
<b>SUBTOTAL</b>							<b>\$135.86</b>
Contractor Overhead						5%	\$6.79
<b>SUBTOTAL</b>							<b>\$142.65</b>
Contractor Profit						10%	\$14.26
<b>TOTAL UNIT COST</b>							<b>\$156.91</b>

## Source of Cost Data:

Building Construction Cost Data, RSMeans, 58th Edition, 2000

Environmental Remediation Cost Data, RS Means, 6th Edition, 2000

## Cost Adjustment Factor:

## FACTOR:

H&amp;S Productivity (labor &amp; equip)

☐

Escalation to Base Year

☐

Area Cost Factor

☒

Subcontractor Overhead &amp; Prof.

☒

Prime Contractor Overhead &amp; Prof.

☒

## NOTES:

Level D

Escalation Factor of 1.00 for base year of 2001, cost information 2000

0.69 localization factor for 052 zip code (Means)

Assuming markup of 10% each for both Overhead and Profit.

Assuming markup of 10% each for both Overhead and Profit.

Common Costs  
Capital Cost Sub-Element  
**DECONTAMINATION PADS - PERSONNEL**

## COST WORKSHEET

**Site:** Pownal Tannery Site  
**Location:** Pownal, VT  
**Phase:** Feasibility Study  
**Base Year:** 2001  
**Date:** Apr-01

**Work Statement:**  
Pad size 6 x 6; thickness of 4 inches

### Cost Analysis:

DESCRIPTION	QTY	UNIT	LABOR	EQUIP	MTRL	UNIT TOTAL	TOTAL
Concrete - 4"	0.44	CY	\$78.00	\$0.98	\$116.00	\$194.98	\$86.66
Gravel base - 4"	0.44	CY	\$1.52	\$1.62	\$18.43	\$21.57	\$9.59
Curb	24	LF	\$0.68	\$0.00	\$1.06	\$1.74	\$41.76
SUBTOTAL							\$138.00
Area Cost Factor						69%	\$95
SUBTOTAL							\$233
Subcontractor Overhead						5%	\$11.66
SUBTOTAL							\$244.89
Subcontractor Profit						10%	\$24.49
SUBTOTAL							\$269.38
Contractor Overhead						5%	\$13.47
SUBTOTAL							\$282.85
Contractor Profit						10%	\$28.28
TOTAL UNIT COST							\$311.13

### Source of Cost Data:

Building Construction Cost Data, RSMeans, 58th Edition, 2000  
Environmental Remediation Cost Data, RS Means, 6th Edition, 2000

### Cost Adjustment Factor:

**FACTOR:**  
H&S Productivity (labor & equip) ☐  
Escalation to Base Year ☐  
Area Cost Factor ☒  
Subcontractor Overhead & Prof. ☒  
Prime Contractor Overhead & Prof. ☒

**NOTES:**  
Level D  
Escalation Factor of 1.00 for base year of 2001, cost information 2000  
0.69 localization factor for 052 zip code (Means)  
Assuming markup of 10% each for both Overhead and Profit.  
Assuming markup of 10% each for both Overhead and Profit.

Common Costs  
Capital Cost Sub-Element  
**DEWATER STANDING WATER IN LAGOONS**

**COST WORKSHEET**

Site: Pownal Tannery Site  
Location: Pownal, VT  
Phase: Feasibility Study  
Base Year: 2001  
Date: Apr-01

**Work Statement:**

One 300 GPM pump operating for 24hrs/day. Pumping assumed to take 2 week to complete.

**Cost Analysis:**

DESCRIPTION	QTY	UNIT	LABOR	EQUIP	MTRL	UNIT TOTAL	TOTAL
4" Dia Contractor's Trash Pump, 300 GPM	7	DAY	\$10.41	\$0.00	\$59.19	\$69.60	\$487.20
Trash pump rental	0.38	MO	\$0.00	\$825.00	\$0.00	\$825.00	\$309.38
Hose, water, suction w/coupling, 20'L, 4" dia	0.38	MO	\$0.00	\$180.00	\$0.00	\$180.00	\$67.50
Discharge hose w/coupling, 50'L, 4" dia	0.38	MO	\$0.00	\$120.00	\$0.00	\$120.00	\$45.00
Laborers	7	DAY	\$500.00	\$0.00	\$0.00	\$500.00	\$3,500.00
SUBTOTAL							\$4,409.08
Area Cost Factor						69%	\$3,042
SUBTOTAL							\$7,451
Subcontractor Overhead						5%	\$372.57
SUBTOTAL							\$7,824
Subcontractor Profit						10%	\$782
SUBTOTAL							\$8,606.29
Contractor Overhead						5%	\$430.31
SUBTOTAL							\$9,036.61
Contractor Profit						10%	\$903.66
TOTAL UNIT COST/ROUND							\$9,940

**Source of Cost Data:**

Construction Cost Data, RS Means, 58th Edition, 2000; Local cost estimate from an ongoing project.  
Environmental Remediation Cost Data, RS Means, 6th Edition, 2000

**Cost Adjustment Factor:**

FACTOR:  
H&S Productivity (labor & equip) ☐  
Escalation to Base Year ☐  
Area Cost Factor ☒  
Subcontractor Overhead & Prof. ☒  
Prime Contractor Overhead & Prof. ☒

NOTES:  
Level D  
Escalation Factor of 1.00 for base year of 2001, cost information 2000  
0.69 localization factor for 052 zip code (Means)  
Assuming markup of 10% each for both Overhead and Profit.  
Assuming markup of 10% each for both Overhead and Profit.

Common Cost  
Capital Cost Sub-Element  
**COLL. & TREAT. OF STANDING WATER IN LAGOONS**

## COST WORKSHEET

**Site:** Pownal Tannery Site  
**Location:** Pownal, VT  
**Phase:** Feasibility Study  
**Base Year:** 2001  
**Date:** Apr-01

### Work Statement:

Treat standing water in Lagoons 1, 2 and 5 for construction activities; costs developed based on the following:  
2,000 lbs carbon/100,000 gals; 20,000 gal/Frac tank storage 8 carbon vessels (2 vessels/Carbon unit); each vessels holds 1,000 lbs of carbon and treats 50 gal/min of flow. Treatment volume: 2,841,000 gals; pumping rate of 300 gal/min operating for 24 hrs. Time to complete = 1.5 wks. Discharge treated water to 2 onsite infiltration galleries (20'x5'x5') lined with geotextile and backfilled with riprap. Estimate assumes no groundwater recharge and only one dewatering event for duration of project.

### Cost Analysis:

DESCRIPTION (Local)	QTY	UNIT	LABOR	EQUIP	MTRL	UNIT TOTAL	TOTAL
Rental of Fragmentation Tanks	0.25	MO	\$0.00	\$0.00	\$30,000.00	\$30,000.00	\$7,500.00
Rental of Carbon Equipment & Operation (8 Units)	1.00	WK	\$0.00	\$0.00	\$12,000.00	\$12,000.00	\$12,000.00
Dewatering Equipment	0.25	MO	-	-	-	\$1,000.00	\$250.00
Material Cost - Carbon	30000	LB	\$0.00	\$0.00	\$0.65	\$0.65	\$19,500.00
Delivery	1	LS	-	-	-	\$10,000.00	\$10,000.00
Disposal of Carbon	30000	LB	\$0.00	\$0.00	\$1.00	\$1.00	\$30,000.00
Geotextile	22	SY	-	-	-	\$1.50	\$33.33
							<u>\$79,283.33</u>
<b>DESCRIPTION (Means)</b>							
Analytical Testing	12	EA	\$0.00	\$0.00	\$1,545.00	\$1,545.00	\$18,540.00
Rock Cover, Riprap, Light (10 to 100 lb)	37	CY	\$3.00	\$2.38	\$15.06	\$20.44	\$757.04
							<u>\$19,297.04</u>
Area Cost Factor						69%	\$13,315
<b>SUBTOTAL (Local &amp; Means)</b>							<u>\$92,598.29</u>
Subcontractor Overhead						5%	\$4,629.91
<b>SUBTOTAL</b>							<u>\$97,228</u>
Subcontractor Profit						10%	\$9,723
<b>SUBTOTAL</b>							<u>\$106,951.02</u>
Contractor Overhead						5%	\$5,347.55
<b>SUBTOTAL</b>							<u>\$112,298.57</u>
Contractor Profit						10%	\$11,229.86
<b>TOTAL UNIT COST/WK</b>							<u><b>\$123,528</b></u>

### Source of Cost Data:

Local costs from an ongoing project; Geotextile estimate from local vendor.  
Construction Cost Data, RS Means, 58th Edition, 2000; Local cost estimate from an ongoing project.  
Environmental Remediation Cost Data, RS Means, 6th Edition, 2000

### Cost Adjustment Factor:

<b>FACTOR:</b>	
H&S Productivity (labor & equip)	<input type="text"/>
Escalation to Base Year	<input type="text"/>
Area Cost Factor	<input checked="" type="checkbox"/>
Subcontractor Overhead & Prof.	<input checked="" type="checkbox"/>
Prime Contractor Overhead & Prof.	<input checked="" type="checkbox"/>

### NOTES:

Level D

Escalation Factor of 1.00 for base year of 2001, cost information 2000

0.69 localization factor for 052 zip code (Means)

Assuming markup of 10% each for both Overhead and Profit.

Assuming markup of 10% each for both Overhead and Profit.



Alternative 3  
Capital Cost Sub-Element  
EXCAVATION

## COST WORKSHEET

Site: Pownal Tannery Site  
Location: Pownal, VT  
Phase: Feasibility Study  
Base Year: 2001  
Date: Apr-01

### Work Statement:

Excavation of bermed material found to contain waste. Subsequently excavated material will be placed with footprint and below final cover.

### Cost Analysis:

DESCRIPTION	QTY	UNIT	LABOR	EQUIP	MTRL	UNIT TOTAL	TOTAL
32 Ft Dump Truck, 6 mil liner, disposable	30	EA	\$0.00	\$0.00	\$28.50	\$28.50	\$855.00
Truck bed covers	300	SY	\$0.16	\$0.00	\$1.53	\$1.69	\$507.00
Stripping topsoil & stockpiling, sandy loam							
400 HP dozer, adverse conditions	0	CY	\$0.16	\$0.70	\$0.00	\$0.86	\$0.00
Excavation	13,904	CY	\$0.34	\$1.66	\$0.00	\$2.00	\$27,808.18
Loading onto trucks	13,904	CY	\$0.34	\$1.66	\$0.00	\$2.00	\$27,808.18
Hauling to dewatering pads or consolidation area	13,904	CY	\$0.63	\$1.55	\$2.18	\$4.36	\$60,621.83
Spread on dewatering pads	0	CY	\$0.34	\$1.66	\$0.00	\$2.00	\$0.00
SUBTOTAL							\$117,600.18
Area Cost Factor						69%	\$81,144
Subcontractor Overhead						5%	\$4,057.21
SUBTOTAL							\$85,201
Subcontractor Profit						10%	\$8,520.13
SUBTOTAL							\$93,721
Contractor Overhead						5%	\$4,686.07
SUBTOTAL							\$98,408
Contractor Profit						10%	\$9,841
							<b>\$108,248.29</b>

### Source of Cost Data:

Building Construction Cost Data, RS Means, 58th Edition, 2000  
Environmental Remediation Cost Data, RS Means, 6th Edition, 2000

### Cost Adjustment Factor:

FACTOR:  
H&S Productivity (labor & equip) ☐  
Escalation to Base Year ☐  
Area Cost Factor ☒  
Subcontractor Overhead & Prof. ☒  
Prime Contractor Overhead & Prof. ☒

NOTES:  
Level D for excavation of berm material  
Escalation Factor of 1.00 for base year of 2001, cost information 2000  
0.69 localization factor for 052 zip code (Means)  
Assuming markup of 10% each for both Overhead and Profit.  
Assuming markup of 10% each for both Overhead and Profit.

Alternative 3  
Capital Cost Sub-Element  
**BACKFILL**

## COST WORKSHEET

Site: Pownal Tannery Site  
Location: Pownal, VT  
Phase: Feasibility Study  
Base Year: 2001  
Date: Apr-01

### Work Statement:

Backfill berm between Lagoons 1 and 5 with clean material. Backfill berm between Lagoons 1 and 5 and the Hoosic River with clean material. Cover face of berm, on river side with riprap.  
Assumed for costing that all of the excavated material, including cover soils, is placed under cap.

### Cost Analysis:

DESCRIPTION	QTY	UNIT	LABOR	EQUIP	MTRL	UNIT TOTAL	TOTAL
Backfill Excavated Material with Common Fill	11,587	CY	\$0.86	\$1.98	\$5.06	\$7.90	\$91,535.25
Rock Cover, Riprap, Heavy (25 to 500 lb)	22000	CY	\$3.00	\$2.38	\$16.57	\$21.95	\$482,878.00
SUBTOTAL							\$574,413.25
Area Cost Factor						69%	\$396,345
Subcontractor Overhead						5%	\$19,817.26
SUBTOTAL							\$416,162
Subcontractor Profit						10%	\$41,616.24
SUBTOTAL							\$457,779
Contractor Overhead						5%	\$22,888.93
SUBTOTAL							\$480,668
Contractor Profit						10%	\$48,066.76
TOTAL UNIT COST							\$528,734.33

### Source of Cost Data:

Environmental Remediation Cost Data, RS Means, 6th Edition, 2000

### Cost Adjustment Factor:

FACTOR:  
H&S Productivity (labor & equip)   
Escalation to Base Year   
Area Cost Factor ☒  
Subcontractor Overhead & Prof. ☒  
Prime Contractor Overhead & Prof. ☒

### NOTES:

Level D

Escalation Factor of 1.00 for base year of 2001, cost information 2000

0.69 localization factor for 052 zip code (Means)

Assuming markup of 10% each for both Overhead and Profit.

Assuming markup of 10% each for both Overhead and Profit.

Alternative 3  
Capital Cost Sub-Element  
**SAND LAYER**

## COST WORKSHEET

Site: Pownal Tannery Site  
Location: Pownal, VT  
Phase: Feasibility Study  
Base Year: 2001  
Date: Apr-01

### Work Statement:

Thickness of sand layer taken as 12" over an approximate area of 6.4 acres increased by 30% to account for side slopes. Sand ton = 6.4 acres x 1' x 30% increase x 92 lb/ft<sup>3</sup> = approx. 16,700 tons.

### Cost Analysis:

DESCRIPTION (Local)	QTY	UNIT	LABOR	EQUIP	MTRL	UNIT TOTAL	TOTAL
Common Sand	20,134	TON	\$0.00	\$0.00	\$5.75	\$5.75	\$115,772.80
<b>DESCRIPTION (Means)</b>	<b>QTY</b>	<b>UNIT</b>	<b>LABOR</b>	<b>EQUIP</b>	<b>MTRL</b>	<b>TOTAL</b>	<b>TOTAL</b>
Excavation of Sand at pit	13,423	CY	\$0.34	\$1.66	\$0.00	\$2.00	\$26,845.87
Loading of Sand at pit	13,423	CY	\$0.39	\$1.91	\$0.00	\$2.30	\$30,872.75
Hauling Sand, 10 mi round trip	13,423	CY	\$1.66	\$5.10	\$0.00	\$6.76	\$90,739.03
Spreading in 8" layers, small dozer	13,423	CY	\$0.30	\$0.76	\$0.00	\$1.06	\$14,228.31
Compaction Sand, 6" to 12" lifts, vibrating roller	13,423	CY	\$0.40	\$1.15	\$0.00	\$1.55	\$20,805.55
<b>SUBTOTAL - Means</b>							<b>\$183,491.50</b>
Area Cost Factor						69%	\$126,609
<b>SUBTOTAL (Local and Means)</b>							<b>\$242,382</b>
Subcontractor Overhead						5%	\$12,119.10
<b>SUBTOTAL</b>							<b>\$254,501</b>
Subcontractor Profit						10%	\$25,450
<b>SUBTOTAL</b>							<b>\$279,951</b>
<b>DESCRIPTION (Means - Sub O&amp;P included)</b>	<b>QTY</b>	<b>UNIT</b>	<b>LABOR</b>	<b>EQUIP</b>	<b>MTRL</b>	<b>TOTAL</b>	<b>TOTAL</b>
In-Place Density	13	EA	\$0.00	\$0.00	\$0.00	\$38.67	\$502.71
Area Cost Factor						69%	\$347
<b>SUBTOTAL</b>							<b>\$280,298.00</b>
Prime Contractor Overhead						5%	\$14,014.90
<b>SUBTOTAL</b>							<b>\$294,660</b>
Prime Contractor Profit						10%	\$29,465.98
<b>TOTAL UNIT PRICE</b>							<b>\$324,125.75</b>

### Source of Cost Data:

Local costs from nearby borrow source obtained on 2/27/01.  
Building Construction Cost Data, RS Means, 58th Edition, 2000

### Cost Adjustment Factor:

FACTOR:  
H&S Productivity (labor & equip) ☐  
Escalation to Base Year ☐  
Area Cost Factor ☒  
Subcontractor Overhead & Prof. ☒  
Prime Contractor Overhead & Prof. ☒

NOTES:  
Level D  
Escalation Factor of 1.00 for base year of 2001, cost information 2000  
0.69 localization factor for 052 zip code (Means)  
Assuming markup of 10% each for both Overhead and Profit.  
Assuming markup of 10% each for both Overhead and Profit.

Alternative 3  
Capital Cost Sub-Element  
**GAS COLLECTION LAYER**

**COST WORKSHEET**

Site: Pownal Tannery Site  
Location: Pownal, Vt  
Phase: Feasibility Study  
Base Year: 2001  
Date: Apr-01

**Work Statement:**

Thickness of gas collection layer taken as 12" over an approximate area of 6.4 acres increased by 30% to account for side slopes. Sand ton = 6.4 acres x 1' x 30% increase x 1.5 TONS/CY = approx. 20,000 tons.  
Gas venting wells costed by assuming 1 gas vent/ACRE at \$1,500/vent based on engineering judgement and experience.

**Cost Analysis:**

DESCRIPTION (Local)	QTY	UNIT	LABOR	EQUIP	MTRL	UNIT TOTAL	TOTAL
Common Sand	20,134	TON	\$0.00	\$0.00	\$5.75	\$5.75	\$115,772.80
<b>DESCRIPTION (Means)</b>	<b>QTY</b>	<b>UNIT</b>	<b>LABOR</b>	<b>EQUIP</b>	<b>MTRL</b>	<b>TOTAL</b>	<b>TOTAL</b>
Excavation of Sand at pit	13,423	CY	\$0.34	\$1.66	\$0.00	\$2.00	\$26,845.87
Loading of Sand at pit	13,423	CY	\$0.39	\$1.91	\$0.00	\$2.30	\$30,872.75
Hauling Sand, 10 mi round trip	13,423	CY	\$1.66	\$5.10	\$0.00	\$6.76	\$90,739.03
Spreading in 8" layers, small dozer	13,423	CY	\$0.30	\$0.76	\$0.00	\$1.06	\$14,228.31
Compaction Sand, 6" to 12" lifts, vibrating roller	13,423	CY	\$0.40	\$1.15	\$0.00	\$1.55	\$20,805.55
Gas Venting Wells	6	ACRE	-	-	-	\$1,500.00	\$9,600.00
SUBTOTAL - Means							\$193,091.50
Area Cost Factor						69%	\$133,233
SUBTOTAL (Local and Means)							\$249,006
Subcontractor Overhead						5%	\$12,450.30
SUBTOTAL							\$261,456
Subcontractor Profit						10%	\$26,146
SUBTOTAL							\$287,602
<b>DESCRIPTION (Means - Sub O&amp;P included)</b>	<b>QTY</b>	<b>UNIT</b>	<b>LABOR</b>	<b>EQUIP</b>	<b>MTRL</b>	<b>TOTAL</b>	<b>TOTAL</b>
In-Place Density	13	EA	\$0.00	\$0.00	\$0.00	\$38.67	\$502.71
Area Cost Factor						69%	\$347
SUBTOTAL							\$287,948.72
Prime Contractor Overhead						5%	\$14,397.44
SUBTOTAL							\$302,346
Prime Contractor Profit						10%	\$30,234.62
<b>TOTAL UNIT PRICE</b>							<b>\$332,580.78</b>

**Source of Cost Data:**

Local costs from nearby borrow source obtained on 2/27/01.  
Building Construction Cost Data, RS Means, 58th Edition, 2000

**Cost Adjustment Factor:**

FACTOR:	
H&S Productivity (labor & equip)	<input type="checkbox"/>
Escalation to Base Year	<input type="checkbox"/>
Area Cost Factor	<input checked="" type="checkbox"/>
Subcontractor Overhead & Prof.	<input checked="" type="checkbox"/>
Prime Contractor Overhead & Prof.	<input checked="" type="checkbox"/>

**NOTES:**

Level D  
Escalation Factor of 1.00 for base year of 2001, cost information 2000  
0.69 localization factor for 052 zip code (Means)  
Assuming markup of 10% each for both Overhead and Profit.  
Assuming markup of 10% each for both Overhead and Profit.

Alternative 3  
Capital Cost Sub-Element  
**GEOSYNTHETICS**

## COST WORKSHEET

Site: Pownal Tannery Site  
Location: Pownal, VT  
Phase: Feasibility Study  
Base Year: 2001  
Date: Apr-01

### Work Statement:

Cap consists (from base to top) of a 6" subgrade, a 12" sand layer, a layer of geotextile, a low hydraulic conductivity cl a 12" sand layer followed by another layer of geotextile, then a 26" layer of Vegetative Support covered with 6" of topsoil. Top of landfill sloped 5% to 7%; sideslopes maximum of 3:1.

### Cost Analysis:

DESCRIPTION	QTY	UNIT	LABOR	EQUIP	MTRL	UNIT TOTAL	TOTAL
Geotextile	80,538	SY	-	-	-	\$1.50	\$120,806.28
SUBTOTAL - Local							\$120,806.28
Prime Contractor Overhead						5%	\$6,040
SUBTOTAL							\$126,847
Prime Contractor Profit						10%	\$12,685
TOTAL UNIT COST							\$139,531

### Source of Cost Data:

Cost estimate from local vendor on 3/20/01.

### Cost Adjustment Factor:

FACTOR:  
H&S Productivity (labor & equip)   
Escalation to Base Year   
Area Cost Factor   
Subcontractor Overhead & Prof. ☒  
Prime Contractor Overhead & Prof. ☒

### NOTES:

Level D  
Escalation Factor of 1.00 for base year of 2001, cost information 2000  
0.69 localization factor for 052 zip code (Means)  
Assuming markup of 10% each for both Overhead and Profit.  
Assuming markup of 10% each for both Overhead and Profit.

Alternative 3

Capital Cost Sub-Element

**VEGETATIVE SUPPORT LAYER****COST WORKSHEET**

Site: Pownal Tannery Site

Location: Pownal, VT

Phase: Feasibility Study

Base Year: 2001

Date: Apr-01

**Work Statement:**

26" layer of vegetative support soil over a 6.4 acre area. Area increased by 30% to account for side slopes.

Layers to be placed in lifts of 6" and in-place density testing completed at a rate of 1 test/acre/lift. Approximate area of cap for testing - 8.6 acres, 4 lifts/acre. Sand ton = 6.4 acres x 1.3 x 2.2ft x 1.5 TONS/CY = approx. 44,000 tons.

**Cost Analysis:**

DESCRIPTION (Local)	QTY	UNIT	LABOR	EQUIP	MTRL	UNIT TOTAL	TOTAL
Common Sand	43,625	TON	\$0.00	\$0.00	\$5.75	\$5.75	\$250,841.07
DESCRIPTION (Means)	QTY	UNIT	LABOR	EQUIP	MTRL	TOTAL	TOTAL
Excavation of Sand at pit	29,083	CY	\$0.34	\$1.66	\$0.00	\$2.00	\$58,166.04
Loading of Sand at pit	29,083	CY	\$0.39	\$1.91	\$0.00	\$2.30	\$66,890.95
Hauling Sand, 10 mi round trip	29,083	CY	\$1.66	\$5.10	\$0.00	\$6.76	\$196,601.23
Spreading in 8" layers, small dozer	29,083	CY	\$0.30	\$0.76	\$0.00	\$1.06	\$30,828.00
Compaction Sand, 6" to 12" lifts, vibrating roller	29,083	CY	\$0.40	\$1.15	\$0.00	\$1.55	\$45,078.68
<b>SUBTOTAL</b>							<b>\$397,564.91</b>
Area Cost Factor						69%	\$274,320
<b>SUBTOTAL (Local and Means)</b>							<b>\$525,161</b>
Subcontractor Overhead						5%	\$26,258.04
<b>SUBTOTAL</b>							<b>\$551,419</b>
Subcontractor Profit						10%	\$55,141.89
<b>SUBTOTAL</b>							<b>\$606,560.79</b>
DESCRIPTION (Means - Sub O&P included)	QTY	UNIT	LABOR	EQUIP	MTRL	TOTAL	TOTAL
In-Place Density	13	EA	\$0.00	\$0.00	\$0.00	\$38.67	\$502.71
Area Cost Factor						69%	\$347
<b>SUBTOTAL</b>							<b>\$606,907.66</b>
Prime Contractor Overhead						5%	\$30,345.38
<b>SUBTOTAL</b>							<b>\$637,253</b>
Prime Contractor Profit						10%	\$63,725.30
<b>TOTAL UNIT PRICE</b>							<b>\$700,978.35</b>

**Source of Cost Data:**

Local costs from nearby borrow source obtained on 2/27/01.

Building Construction Cost Data, RS Means, 58th Edition, 2000

**Cost Adjustment Factor:****FACTOR:**

H&amp;S Productivity (labor &amp; equip)

☐

Escalation to Base Year

☐

Area Cost Factor

☒

Subcontractor Overhead &amp; Prof.

☒

Prime Contractor Overhead &amp; Prof.

☒**NOTES:**

Level D

Escalation Factor of 1.00 for base year of 2001, cost information 2000

0.69 localization factor for 052 zip code (Means)

Assuming markup of 10% each for both Overhead and Profit.

Assuming markup of 10% each for both Overhead and Profit.

Alternative 3  
Capital Cost Sub-Element  
TOPSOIL

## COST WORKSHEET

Site: Pownal Tannery Site  
Location: Pownal, VT  
Phase: Feasibility Study  
Base Year: 2001  
Date: Apr-01

### Work Statement:

6" layer of topsoil over an approximate 6.4 s.f. area increased by 30% to account for side slopes. Assuming volumetric weight of topsoil = 1.5 TONS/CY x 6700 CY = approx. 10,000 tons.

### Cost Analysis:

DESCRIPTION (Local)	QTY	UNIT	LABOR	EQUIP	MTRL	UNIT TOTAL	TOTAL
Common Topsoil	10,067	TON	\$0.00	\$0.00	\$11.50	\$11.50	\$115,772.80
DESCRIPTION (Means)	QTY	UNIT	LABOR	EQUIP	MTRL	TOTAL	TOTAL
Excavation of Topsoil at pit	6,711	CY	\$0.34	\$1.66	\$0.00	\$2.00	\$13,422.93
Loading of Topsoil at pit	6,711	CY	\$0.39	\$1.91	\$0.00	\$2.30	\$15,436.37
Hauling Topsoil, 10 mi round trip	6,711	CY	\$1.66	\$5.10	\$0.00	\$6.76	\$45,369.51
Area Preparation, 67% Level, 33% Slope	6	ACRE	\$22.05	\$40.14	\$0.00	\$62.19	\$398.02
Fine Grading	30,976	SY	\$0.06	\$0.15	\$0.00	\$0.21	\$6,504.96
SUBTOTAL							\$81,131.80
Area Cost Factor						69%	\$55,981
SUBTOTAL (Local and Means)							\$171,754
Subcontractor Overhead						5%	\$8,587.69
SUBTOTAL							\$180,341
Subcontractor Profit						10%	\$18,034.14
SUBTOTAL							\$198,376
Contractor Overhead						5%	\$9,918.78
SUBTOTAL							\$208,294
Contractor Profit						10%	\$20,829.43
TOTAL UNIT COST							\$229,123.78

### Source of Cost Data:

Local costs from nearby borrow source obtained on 2/27/01.  
Building Construction Cost Data, RS Means, 58th Edition, 2000  
Environmental Remediation Cost Data, RS Means, 6th Edition, 2000

### Cost Adjustment Factor:

FACTOR:  
H&S Productivity (labor & equip) ☐  
Escalation to Base Year ☐  
Area Cost Factor ☒  
Subcontractor Overhead & Prof. ☒  
Prime Contractor Overhead & Prof. ☒

NOTES:  
Level D  
Escalation Factor of 1.00 for base year of 2001, cost information 2000  
0.69 localization factor for 052 zip code (Means)  
Assuming markup of 10% each for both Overhead and Profit.  
Assuming markup of 10% each for both Overhead and Profit.

Alternative 3  
Capital Cost Sub-Element  
**DRAINAGE STRUCTURES**

**COST WORKSHEET**

**Site:** Pownal Tannery Site  
**Location:** Pownal, Vt  
**Phase:** Feasibility Study  
**Base Year:** 2001  
**Date:** Apr-01

**Work Statement:**

Estimate of material required to build drainage structures for a landfill cap assuming drainage swale around perimeter of cap footprint, width of 10' and depth of 2', consisting of 10 to 100 lb riprap over nonwoven geotextile. An allowance for two heavy stone riprap areas of ~200 sf were assumed for construction of heavy drainage outlet structures.

**Cost Analysis:**

DESCRIPTION (Means)	QTY	UNIT	LABOR	EQUIP	MTRL	UNIT TOTAL	TOTAL
Rock Cover, Riprap, Heavy (25 to 500 lb)	70	CY	\$3.00	\$2.38	\$15.78	\$21.16	\$1,481.20
Rock Cover, Riprap, Light (10 to 100 lb)	2000	CY	\$3.00	\$2.38	\$15.06	\$20.44	\$40,880.00
<b>SUBTOTAL</b>							<b>\$42,361.20</b>
Area Cost Factor						69%	\$29,229
Subcontractor Overhead						5%	\$1,461
<b>SUBTOTAL</b>							<b>\$30,691</b>
Subcontractor Profit						10%	\$3,069
<b>SUBTOTAL</b>							<b>\$33,760</b>
Prime Contractor Overhead						5%	\$1,687.99
<b>SUBTOTAL</b>							<b>\$35,447.75</b>
Prime Contractor Profit						10%	\$3,544.77
<b>SUBTOTAL</b>							<b>\$38,992.52</b>
<b>DESCRIPTION (Local Contractor)</b>	<b>QTY</b>	<b>UNIT</b>	<b>LABOR</b>	<b>EQUIP</b>	<b>MTRL</b>	<b>UNIT TOTAL</b>	<b>TOTAL</b>
Geotextile	9000	SY	-	-	-	\$1.50	\$13,500.00
Prime Contractor Overhead						5%	\$675.00
<b>SUBTOTAL</b>							<b>\$14,175.00</b>
Prime Contractor Profit						10%	\$1,418
<b>SUBTOTAL</b>							<b>\$15,593</b>
<b>TOTAL UNIT COST</b>							<b>\$54,585</b>

**Source of Cost Data:**

Environmental Remediation Cost Data, RS Means, 6th Edition, 2000  
Geotextile estimate from RTD for installed material, includes subcontractor's markup for overhead and profit.

**Cost Adjustment Factor:**

**FACTOR:**  
H&S Productivity (labor & equip) ☐  
Escalation to Base Year ☐  
Area Cost Factor ☒  
Subcontractor Overhead & Prof. ☒  
Prime Contractor Overhead & Prof. ☒

**NOTES:**  
Level D  
Escalation Factor of 1.00 for base year of 2001, cost information 2000  
0.69 localization factor for 052 zip code (Means)  
Assuming markup of 10% each for both Overhead and Profit.  
Assuming markup of 10% each for both Overhead and Profit.



Common costs  
Capital Cost Sub-Element  
**LAND USE RESTRICTIONS**

## COST WORKSHEET

Site: Pownal Tannery Site  
Location: Pownal, Vt  
Phase: Feasibility Study  
Base Year: 2001  
Date: Apr-01

Work Statement:  
Zoning/Deed restrictions

### Cost Analysis:

DESCRIPTION	QTY	UNIT	LABOR	EQUIP	MTRL	UNIT TOTAL	TOTAL
Legal Preparation	120	HR	\$150.00	\$0.00	\$0.00	\$150.00	\$18,000.00
Engineering Support	80	HR	\$75.00	\$1.62	\$18.43	\$95.05	\$7,604.00
Filing	1	LS	\$0.00	\$0.00	\$2,000.00	\$2,000.00	\$2,000.00
SUBTOTAL							\$27,604.00
Contractor Overhead						5%	\$1,380.20
SUBTOTAL							\$28,984.20
Contractor Profit						10%	\$2,898.42
TOTAL UNIT COST							<b>\$31,882.62</b>

Source of Cost Data:  
Engineering judgement

# RAA-4

#### **RAA-4: Material Excavated and Consolidated/Capped On-site.**

##### **ASSUMPTIONS:**

- i. Discount rate for net present worth calculation of 7% per recommendation of EPA document 540-R-00-002, A Guide to Developing and Documenting Cost Estimates During the Feasibility Study.
- ii. Cost estimating sources:  
  
Building Construction Cost Data, RS Means, 58th Edition, 2000  
Environmental Remediation Cost Data, RS Means, 6th Edition, 2000  
Local vendors, RI costs for Pownal Tannery, and ongoing projects
- iii. Abbreviations: CY = cubic yards; CF = cubic feet; SY = square yard; SF = square feet; LF = linear feet; LS = lump sum; EA = each; MWK = man weeks; MSF = thousand square feet; MO = month; WK = week; CYL = cylinder.
- iv. Future use of site for recreational purposes. A separate investigation and cost estimate will need to be prepared for future site development.
- v. For costing purposes, assumed that wetlands will be recreated at a 1:1 ratio.
- vi. A 1.5 conversion factor was used to convert from CY to TON for sediment/sludge cost calculations.
- vii. RI determination of waste quantities adequate for implementation of RAA-4. No additional sampling required to further delineate extent of waste.

##### **CAPITAL COST ITEMS:**

###### **Estimated Time to Complete Alternative:**

- Mobilization/Demobilization:	4 wks
- Site Work	5 wks
- Excavation/Consolidation	11 wks
- Wetlands	3 wks
- Cover	10 wks
- Site Restoration	2 wks
	8.75 Months

Note: Total project duration does not include seasonal impacts or delays.

1. Mobilization/Demobilization: Site construction activities will require office trailers and field office supplies, storage trailers, decontamination trailers, sanitary facilities, utilities

(phone and electrical, including connect/disconnect fees and monthly charges), and site lighting. Assumed installation of electrical poles will be necessary to bring power to the lagoon area (1 pole/150 LF). An allowance for pre-/post- construction submittals and implementation plans is included based on hourly rates for engineering and office support. See hourly breakdown included with applicable Common Cost Sub-Element Worksheets.

## 2. Site Work:

*General Equipment:* Includes construction support equipment such as site vehicles, dumpsters, and water coolers for the site office trailers. A portable generator is included to support equipment located away from electrical receptacles where using an extension cord would be impractical.

*Continuous Air Monitoring:* Assumed 1 laborer at \$55/hr will conduct continuous monitoring during 25% of site preparation and capping. See applicable Common Cost Sub-Element Worksheet for breakdown of monthly expense.

*Clearing/Grubbing:* Will need to clear and grub site to facilitate movement of construction equipment. See applicable RAA-4 Capital Cost Worksheet for additional assumptions.

*Well Abandonment/Replacement:* Assumed 7 wells in the lagoon area will need to be abandoned/reinstalled for cap construction and excavation of perimeter berm between Hoosic River and Lagoons 1 and 5. Cost estimate based on previous experience.

*Surveying:* Assumed 2-man crew with GPS at \$135/hr onsite for 1 week during general site preparation and also for 21 weeks during excavation and capping activities at 3 days/week. The unit cost estimate was based on information from an ongoing project. The Subcontractor's cost includes hours for 1 supervisor at \$50/hr and has an additional mark up to include Contractor's O&P.

*Erosion-Dust Control:* Assumed use of a water truck for dust suppression, the installation of silt fencing with hay bales along the access road bordering the Hoosic River (approximately 1,800 LF), and an allowance for construction of one sedimentation trap (50'x 25'x 6'). Exact location, size and grading requirements to be determined during design phase. See applicable Common Cost Sub-Element Worksheet for sedimentation basin material and quantity assumptions made for costing purposes.

*Access Roads-Perimeter:* A temporary perimeter road around landfill cap will need to be installed to facilitate excavation/consolidation/capping activities (using 2,200 LF of road). See applicable Common Cost Sub-Element Worksheet for breakdown of unit cost/100 LF. Road cross-section consists of a layer of geotextile, and 0.5 feet of crushed stone.

*Access Roads-Lagoons:* Road access, through Lagoons 1 and 5, is needed to facilitate excavation of contaminated material (using 500 LF). Road cross-section consists of 3' of subgrade fill, a layer of geotextile, and 0.5 feet of crushed stone.

*Perimeter Construction/Security Fence:* Assumed the removal of existing fence and the installation of a 7-foot high fence around the entire perimeter of the Lagoon area. See applicable RAA-4 Capital Cost Sub-Element Worksheet for additional assumptions.

*Backfill Lagoon 2:* Lagoon 2 will be backfilled to site grade elevation of 510' to create a staging area for site trailers, decontamination facilities and structures. The final two feet of backfill will be 1.5" crushed gravel. See applicable Common Cost Sub-Element Worksheet for additional assumptions.

*Decontamination Structure – Heavy Equipment:* Two, 8" thick, 25' x 65', concrete pads will be constructed in the staging area to remove sediment from equipment. Pad construction includes a 6" gravel base, a concrete curb and sump with 12" corrugated pipe around perimeter. Exact locations and size to be determined during design phase. See applicable Common Cost Sub-Element Worksheet for assumed quantities and material unit costs.

*Decontamination Structure – Personnel:* Two, 4" thick, 6' x 6', concrete pads will be constructed in the staging area. Pad construction includes a 4" gravel base with a concrete curb around the perimeter. Exact locations and size to be determined during design phase. See applicable Common Cost Sub-Element Worksheet for assumed quantities and material unit costs.

*Dewater Standing Water in Lagoons:* Standing water volume estimate of approximately 2,841,000 gal in Lagoons 1, 2, 4 and 5. Requires the use of one 300 GPM pump operating 24 hrs/day for 1 week to remove initial volume. Assumes no immediate ground water recharge. During construction, figure standing water will need to be removed approximately once per month to account for slow ground water recharge and precipitation accumulation. Dewatering of standing water assumed to be above the water table. See applicable Common Cost Sub-Element Worksheet for quantities and unit costs.

*Collection & Treatment of Standing Water in Lagoons:* Will treat standing water in lagoons using eight Carbon Adsorption units. Each unit consists of two vessels containing 1,000 lbs of carbon/vessel; 2,000 lbs of carbon assumed to treat 100,000 gallons. Fractionation tanks (20,000 gal/tank) will be needed to store untreated water. Discharge of treated water will occur onsite through two infiltration galleries assumed to be 20' x 5' x 5' and consisting of geotextile and riprap, exact location and size to be determined during design. Analytical testing will be conducted prior to initial discharge to ensure proper treatment.

*Continuous Cleanup:* Cleanup of site during construction activities – 1 laborer.

*Site Restoration:* Estimate from previous project. Costs to remove concrete structures, repair access roads, and clean up debris.

### 3. Excavation of Waste Material, Backfill & Wetland Mitigation:

*Excavation:* Estimate includes excavating approximately 25,300 CY of saturated sludge from Lagoons 1 and 5, 8,700 CY of unsaturated sludge from Lagoon 1, 10,648 CY of cover soils from Lagoon 1 and 11,587 CY of berm material between Lagoons 1 and 5 and between Lagoons 1 and 5 and the Hoosic River, loading the material onto trucks and transporting the material to a dewatering pad (if saturated) or directly to the consolidation/capping area (if unsaturated). Cover soil from Lagoon 1 will be stockpiled for future use or disposal. Reuse of material not included in cost estimate. Assuming excavation rate of 60 CY/hr using two excavators. Quantity of removed material padded by 20%. Other costs include truck bed liners (2 liners/day) and covers (1 cover/day). Excavation assumed to be conducted without dewatering below the water table and under Level B conditions for 30% of excavated volume.

*Confirmatory Soil Sampling:* Needed to verify/confirm that desired concentration levels have been achieved through excavation. Analysis cost includes testing for Pest/PCBs, VOCs, SVOCs, Metals/CN and Dioxins.

*Technician – Soil Sampling:* Labor required to collect samples during excavation – 1 technician at \$55/hr. Includes contractor markup for overhead and profit.

*Sludge Dewatering Structures:* Construction costs for a 30' x 40' dewatering structure to store saturated, contaminated, material before treatment. Components for construction determined from EPA document 625/6-89/022; S/S of CERCLA and RCRA Wastes: Physical Tests, Chemical Testing Procedures, Technology Screening and Field Activities, Section 7.1.3. - Untreated Waste Storage. Exact number and location of structures to be determined in design phase.

*Level B Equipment/Operation/Shipping Allowance:* Assuming a crew of 15 will need equipment and supplies for excavation of contaminated sludge.

*Decontamination of Heavy Equipment:* Includes decontamination of 10 pieces of equipment, once/day during initial site work, excavation and capping.

*Operation of Trash Pump:* Cost to operate a trash pump for decontamination over period of initial site work, excavation and capping. See Common Cost Sub-Element Worksheet for decontamination of heavy equipment.

*Backfill Excavated Material and 75% of Lagoon 1:* Assuming all of the material excavated will be backfilled with clean material from a local borrow source. 75% of Lagoon 1 will be backfilled to grade (Figure 4.4-2).

*Wetland Mitigation:* Assuming 1:1 replacement of 2.4 acres of wetlands with locations of recreated wetland areas to be determined at the design stage.

#### 4. Consolidation of Waste Material:

*Collection & Treatment of Runoff from Dewatering Structures:* Estimated time to complete excavation and initial installation of cap subgrade is assumed to be 16 wks. Analytical monitoring for compliance before direct discharge into onsite infiltration galleries.

*Backfill w/common fill – Subgrade:* Means unit cost that includes loading sand at pit, delivering to site, and dumping sand at location. Unit price includes localization factor and markups for subcontractor and contractor overhead and profit.

*Rough Grading of Subgrade:* Means unit cost for grading with dozer. Unit price includes localization factor and markups for subcontractor and contractor overhead and profit.

*Compaction of Subgrade:* Means unit cost that includes compacting subgrade using a roller, 6" lifts. Unit price includes localization factor and markups for subcontractor and contractor overhead and profit.

*Odor Suppression:* Application of foam odor suppressant during excavation and capping of contaminated material. Costs for labor include 1 laborer at \$65/hr. Material costs include shipping.

*Spread/Compact Contaminated Material:* Means unit cost that includes spreading dumped borrow and compacting with roller in 8" lifts. Unit price includes localization factor and markups for subcontractor and contractor overhead and profit.

#### 5. Cover:

*Cap components (from base to top):* 6" subgrade, 12" sand layer, geotextile, 24" low hydraulic conductivity clay layer, 12" gas collection layer, geotextile, 26" Vegetative Support layer and 6" of topsoil. Top of landfill sloped 5% to 7%; sideslopes maximum of 3:1. Area of cap = 4.0 acres.

*Sand Layer/Gas Collection Layer:* Thickness of gas collection layer taken as 12" over an approximate area of 4 acres increased by 30% to account for side slopes. Sand ton = 4 acres x 1 ft x 30% increase x 1.5 CY/TON = approx. 12,600 tons. Gas

venting wells costed by assuming 1 gas vent/ACRE at \$1,500/vent based on engineering judgment and experience.

*Geosynthetics:* Two layers of geotextile installed over an area of 4 acres.

*Clay 10E-7, 6" lifts, off-site:* Unit cost from Means. Includes installation of clay layer in 6" lifts, clay material from an offsite location

*Vegetative Support Layer (Sand):* 26" layer of vegetative support soil over 4 acres. Area increased by 30% to account for side slopes. Layers to be placed in lifts of 6" and in-place density testing completed at a rate of 1 test/acre/lift. Approximate area of cap for testing ~ 4 acres, 4 lifts/acre. Sand ton = 4 acres x 1.3 x 2.2ft x 1.5 TONS/CY = approx 27,000 tons.

*Topsoil:* 6" layer of topsoil over an approximate 4 acres. Area increased by 30% to account for side slopes. Topsoil ton = 1.5 TONS/CY x 4200 CY = approx. 5,100 tons.

*Geotechnical Testing of Soil Materials:* Grain size analysis at a rate of 1 test/500 tons of material for gas collection layer, granular drainage layer and topsoil.

*Drainage Structures:* Estimate of material required to build drainage structures for landfill cap assuming drainage swale around perimeter of cap footprint (approx. 2,400 LF) width of 10' and depth of 2', consisting of 10 to 100 lb riprap over nonwoven geotextile. An allowance for two heavy stone riprap areas of ~200 sf were assumed for construction of heavy drainage outlet structures.

*Erosion Control Blankets:* Installation of blankets over cap area of 4.0 acres. Means unit price includes localization factor and markups for subcontractor and contractor overhead and profit.

*Seeding/Mulch/Fertilizer:* Application over cap area of 6.4 acres. Means unit price includes localization factor and markups for subcontractor and contractor overhead and profit.

*Land Use Restriction:* See hourly breakdown and rates included with applicable Common Cost Worksheets.



Alternative 4

## VERMONT SUBCHAPTER 6 FINAL COVER

## COST ESTIMATE SUMMARY

Site: Pownal Tannery Site  
 Location: Pownal, VT  
 Phase: Feasibility Study  
 Base Year: 2001  
 Date: Apr-01

Description: Alternative 4 consists of excavation, consolidation, and VT Solid Waste (Subchapter 6) final cover with land use restrictions. Capital costs occur in Year 0. Annual costs occur in Years 1-6. Periodic costs occur in every 5 yrs for 30 years.

## CAPITAL COSTS:

DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	NOTES
<b>Mobilization / Demobilization</b>					
Construction Equipment	2	LS	\$2,017.69	\$4,035	Excavators, loaders, etc.
Submittals/Implementation Plans	1	LS	\$100,985.69	\$100,986	
Temporary Facilities & Utilities	1	LS	\$77,210.78	\$77,211	
Field Office Supplies	1	LS	\$14,519.33	\$14,519	
Post-Construction Submittals	1	LS	\$29,481.95	\$29,482	Post-construction report
<b>SUBTOTAL</b>				<b>\$226,233</b>	
<b>Site Work</b>					
General Equipment & Supplies	1	LS	\$44,801.27	\$44,801	
Continuous Air Monitoring	8.75	MO	\$5,120.17	\$44,802	
Clearing/Grubbing	1	LS	\$20,474.62	\$20,475	
Well Abandonment/Replacement	7	EA	\$5,775.00	\$40,425	
Surveying	66	DAY	\$1,709.40	\$112,820	2-man crew
Erosion/Dust Control Measures	1	LS	\$32,224.46	\$32,224	
Access Roads - Lagoons	5	100 LF	\$5,075.78	\$24,110	
Access Roads - Perimeter	22	100 LF	\$1,657.30	\$36,461	
Perimeter Fence	1	LS	\$137,680.62	\$137,681	
Backfill Lagoon 2	1	LS	\$506,827.00	\$506,827	
Decon. Structure - Heavy Equipment	2	LS	\$29,360.54	\$58,721	
Decon. Structure - Personnel	2	EA	\$311.13	\$622	
Dewater Standing Water in Lagoons	1.5	EA	\$9,940.27	\$14,910	
Collect and Treat Standing Water	3	WK	\$123,528.43	\$370,585	
Decontamination of Frac. Tanks	20	EA	\$1,000.00	\$20,000	
Continuous Cleanup	28	MWK	\$819.22	\$22,938	Means including O&P and localization factor
Site Restoration	1	LS	\$5,000.00	\$5,000	
<b>SUBTOTAL</b>				<b>\$1,493,403</b>	
<b>Excavation of Waste Material, Backfill and Wetland Mitigation</b>					
Excavation	1	LS	\$423,523.13	\$423,523	
Confirmatory soil sampling	50	EA	\$1,100.00	\$55,000	
Technician - soil sampling	1	LS	\$27,951.00	\$27,951	
Sludge Dewatering Structures -	4	LS	\$3,212.65	\$12,851	
Level B Equipment	15	PER	\$5,600.30	\$84,005	
Level B Operation	0.92	MO	\$13,349.08	\$12,224	
Level B Shipping Allowance	1	LS	\$5,000.00	\$5,000	
Decontamination of Heavy Equipment	1,300	EA	\$220.44	\$286,567	Means including O&P and localization factor
Operation of Trash Pump	130	DAY	\$156.91	\$20,399	
Backfill Excavated Material	1	LS	\$476,677.20	\$476,677	
Lagoon Area Restoration/Stabilization	2.4	ACRE	\$46,200.00	\$110,880	Including O&P
				<b>\$1,515,076</b>	
<b>Consolidation of Waste Material</b>					
Collection & Treatment of Runoff from Dewatering Structures	1	LS	\$91,253.49	\$91,253	
Backfill w common fill - subgrade	3,872	CY	\$21.01	\$81,332	
Rough Grading of Subgrade	19,360	SY	\$2.95	\$57,025	
Compaction of Subgrade	174,240	SF	\$0.44	\$76,984	
Odor Suppression	1	LS	\$16,953.09	\$16,953	
Spread/Compact Contaminated Material	40,800	CY	\$1.15	\$46,869	Level B; Unit cost increased by 20%
<b>SUBTOTAL</b>				<b>\$370,417</b>	
<b>Cover</b>					
Sand Layer	1	LS	\$202,336.27	\$202,336	
Gas Collection Layer	1	LS	\$207,859.13	\$207,859	
Geosynthetics	1	LS	\$87,206.25	\$87,206	
Clay 10E-7, 6" lifts, Off-site	16,779	CY	\$15.99	\$268,269	Localized with O&P included
Granular Drainage Layer (sand)	1	LS	\$438,415.80	\$438,416	
Topsoil	1	LS	\$143,202.36	\$143,202	
Geotechnical Testing of Soil Materials	92	EA	\$142.36	\$13,137	Soil Tests/500 tons of material; Grain Size
Drainage Structures	1	LS	\$43,804.35	\$43,804	
Erosion Control Blankets	25,168	SY	\$1.12	\$28,263	
Seeding/Mulch/Fertilizer	25,168	SY	\$1.37	\$34,518	
<b>SUBTOTAL</b>				<b>\$1,467,012</b>	

Alternative 4

## VERMONT SUBCHAPTER 6 FINAL COVER

## COST ESTIMATE SUMMARY

Site: Pownal Tannery Site  
 Location: Pownal, VT  
 Phase: Feasibility Study  
 Base Year: 2001  
 Date: Apr-01

Description: Alternative 4 consists of excavation, consolidation, and VT Solid Waste (Subchapter 6) final cover with land use restrictions. Capital costs occur in Year 0. Annual costs occur in Years 1-6. Periodic costs occur in every 5 yrs for 30 years.

SUBTOTAL			\$5,072,142
Contingency (10% scope + 15% bid)	25%		\$1,268,035.38
SUBTOTAL			\$6,340,177
Project Management	5%		\$317,008.85
Remedial Design	8%		\$507,214.15
Construction Management	6%		\$380,410.61
Institutional Controls	-		\$31,883 Land use restrictions
TOTAL CAPITAL COST:			\$7,576,693

## ANNUAL O&amp;M COSTS (Year 1):

DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	NOTES
Site Monitoring					
Cap Inspections	2	EA	\$3,000.00	\$6,000	
Mowings (2/year)	227	MSF	\$2.84	\$940	Lawn, riding mower, 48" - 58"; Including markups
Groundwater Sampling - Equipment and Labor	4	EA	\$32,771.92	\$131,088	
Groundwater Analysis - VOCs, SVOCs, Metals	60	EA	\$2,000.00	\$120,000	12 locations, quarterly, inc 3 QA/QC Samples
Groundwater Analysis - Dioxins (Semiannually)	14	EA	\$750.00	\$10,500	12 locations, 2 QA/QC Samples
Sediment Sampling - Equipment and Labor	1	EA	\$8,364.10	\$8,364	
Sediment Analysis - VOCs, SVOCs, Metals	7	EA	\$1,100.00	\$7,700	4 locations, annually, inc 3 QA/QC Samples
Sediment Analysis - Dioxins	5	EA	\$800.00	\$4,000	
SUBTOTAL				\$286,592	
Professional/Technical Support					
O&M Technical Report			15%	\$42,989	
O&M Oversight			5%	\$14,330	
SUBTOTAL				\$343,911	
Contingency			10%	\$34,391	
TOTAL ANNUAL O&M COST (Year 1)				\$378,302	

## ANNUAL O&amp;M COSTS (Years 2-3):

DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	NOTES
Site Monitoring					
Cap Inspections	1	EA	\$3,000.00	\$3,000	
Mowings (2/year)	227	MSF	\$2.84	\$940	Lawn, riding mower, 48" - 58"
Groundwater Sampling - Equipment and Labor	2	EA	\$32,771.92	\$65,544	
Groundwater Analysis - VOCs, SVOCs, Metals	30	EA	\$2,000.00	\$60,000	12 locations, semi; inc 3 QA/QC Samples
Groundwater Analysis - Dioxins	14	EA	\$750.00	\$10,500	Semiannual, inc 2 QA/QC Samples
Sediment Sampling - Equipment and Labor	1	EA	\$8,364.10	\$8,364	
Sediment Analysis - VOCs, SVOCs, Metals	7	EA	\$1,100.00	\$7,700	4 locations, annually, inc 3 QA/QC Samples
Sediment Analysis Dioxins	5	EA	\$800.00	\$4,000	
SUBTOTAL				\$158,048	
Professional/Technical Support					
O&M Technical Report			15%	\$23,707	
O&M Oversight			5%	\$7,902	
SUBTOTAL				\$189,658	
Contingency			10%	\$18,966	
SUBTOTAL					
TOTAL ANNUAL O&M COST (Years 2-3)				\$208,624	

Alternative 4

## VERMONT SUBCHAPTER 6 FINAL COVER

## COST ESTIMATE SUMMARY

Site: Pownal Tannery Site  
 Location: Pownal, Vt  
 Phase: Feasibility Study  
 Base Year: 2001  
 Date: Apr-01

Description: Alternative 4 consists of excavation, consolidation, and VT Solid Waste (Subchapter 6) final cover with land use restrictions. Capital costs occur in Year 0. Annual costs occur in Years 1-6. Periodic costs occur in every 5 yrs for 30 years.

## ANNUAL O&amp;M COSTS (Years 4-6):

DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	NOTES
Site Monitoring					
Cap Inspections	1	EA	\$3,000.00	\$3,000	
Mowings (2/year)	227	MSF	\$2.84	\$940	Lawn, riding mower, 48" - 58"
Groundwater Sampling - Equipment and Labor	1	EA	\$32,771.92	\$32,772	
Groundwater Analysis - VOCs, SVOCs, Metals	15	EA	\$2,000.00	\$30,000	12 locations, annual; inc 3 QA/QC Samples
Groundwater Analysis - Dioxins	14	EA	\$750.00	\$10,500	Annual; 2 QA/QC Sample
Sediment Sampling - Equipment and Labor	1	EA	\$6,364.10	\$6,364	
Sediment Analysis - VOCs, SVOCs, Metals	7	EA	\$1,100.00	\$7,700	4 locations, annually; inc 3 QA/QC Samples
Sediment Analysis - Dioxins	5	EA	\$800.00	\$4,000	
SUBTOTAL				\$95,277	
Professional/Technical Support					
O&M Technical Report			15%	\$14,291	
O&M Oversight			5%	\$4,764	
SUBTOTAL				\$114,332	
Contingency			10%	\$11,433	
SUBTOTAL					
TOTAL ANNUAL O&M COST (Years 4-6)				\$125,765	

## PERIODIC COSTS:

DESCRIPTION	YR	QTY	UNIT	UNIT COST	TOTAL	NOTES
Perimeter Fence Repairs	5	1	EA	\$6,884.03	\$25,341	5% of installation cost
Cap, Erosion, Seeding Repairs	5	1	EA	\$36,675.30	\$36,675	2.5% of cap installation
Five Year Report	5	1	EA	\$12,000.00	\$12,000	
Update Institutional Controls	5	1	EA	\$3,000.00	\$3,000	
					\$77,017	
Perimeter Fence Repairs	10-30	1	EA	\$6,884.03	\$25,341	5% of installation cost
Cap, Erosion, Seeding Repairs	10-30	1	EA	\$22,005.18	\$22,005	1.5% of cap installation
Five Year Report	10-30	1	EA	\$12,000.00	\$12,000	
Update Institutional Controls	10-30	1	EA	\$3,000.00	\$3,000	
					\$62,347	

## PRESENT VALUE ANALYSIS:

COST TYPE	YEAR	TOTAL COST	TOTAL COST/YR	DISCOUNT FACTOR	PRESENT VALUE	NOTES
Capital Cost	0	\$7,576,693	\$7,576,693	-	-	See support sheet for discount factors and Present Value calculation
Annual O&M Cost	1	\$378,302	\$378,302	-	-	
Annual O&M Cost	2-3	\$417,248	\$208,624	-	-	
Annual O&M Cost	4-6	\$377,295	\$125,765	-	-	
Periodic Cost	5	\$77,017	\$77,017	-	-	Remedial Action Report
Periodic Cost	10	\$62,347	\$62,347	-	-	
Periodic Cost	15	\$62,347	\$62,347	-	-	
Periodic Cost	20	\$62,347	\$62,347	-	-	
Periodic Cost	25	\$62,347	\$62,347	-	-	
Periodic Cost	30	\$62,347	\$62,347	-	-	

TOTAL PRESENT VALUE OF ALTERNATIVE

\$8,697,039

Alternative 4

## VERMONT SUBCHAPTER 6 FINAL COVER

## PRESENT VALUE ANALYSIS

**Site:** Pownal Tannery Site      **Description:** Alternative 4 consists of excavation, consolidation, and VT Solid Waste (Subchapter 6) final cover with land use restrictions. Capital costs occur in Year 0. Annual costs occur in Years 1-6. Periodic costs occur in every 5 yrs for 30 years.  
**Location:** Pownal, VT  
**Phase:** Feasibility Study  
**Base Year:** 2001  
**Date:** Apr-01

Year	Capital Costs (\$)	Annual O&M Costs (\$)	Periodic Costs (\$)	Total Costs (\$)	Discount Factor at 7%	Total Present Value Cost at 7% (\$)
0	\$7,576,693	\$0		\$7,576,693	1.000	\$7,576,693
1		\$378,302		\$378,302	0.935	\$353,712
2		\$208,624		\$208,624	0.873	\$182,129
3		\$208,624		\$208,624	0.816	\$170,237
4		\$125,765		\$125,765	0.763	\$95,959
5		\$125,765	\$77,017	\$202,782	0.713	\$144,583
6		\$125,765		\$125,765	0.666	\$83,759
7				\$0	0.623	\$0
8				\$0	0.582	\$0
9				\$0	0.544	\$0
10			\$62,347	\$62,347	0.508	\$31,672
11				\$0	0.475	\$0
12				\$0	0.444	\$0
13				\$0	0.415	\$0
14				\$0	0.388	\$0
15			\$62,347	\$62,347	0.362	\$22,569
16				\$0	0.339	\$0
17				\$0	0.317	\$0
18				\$0	0.296	\$0
19				\$0	0.277	\$0
20			\$62,347	\$62,347	0.258	\$16,085
21				\$0	0.242	\$0
22				\$0	0.226	\$0
23				\$0	0.211	\$0
24				\$0	0.197	\$0
25			\$62,347	\$62,347	0.184	\$11,472
26				\$0	0.172	\$0
27				\$0	0.161	\$0
28				\$0	0.150	\$0
29				\$0	0.141	\$0
30			\$62,347	\$62,347	0.131	\$8,167

TOTAL PRESENT VALUE OF ALTERNATIVE

\$8,697,039

Alternative 4  
Capital Cost Sub-Element  
**CONSTRUCTION EQUIPMENT**

**COST WORKSHEET**

Site: Pownal Tannery Site  
Location: Pownal, VT  
Phase: Feasibility Study  
Base Year: 2001  
Date: Apr-01

**Work Statement:**  
Mobilization and demobilization costs for large equipment.

**Cost Analysis:**

DESCRIPTION (Means)	QTY	UNIT	LABOR	EQUIP	MTRL	UNIT TOTAL	TOTAL
Backhoe/FE Loader	1	EA	-	\$274	-	\$274	\$274.00
Dump Truck	3	EA	-	\$274	-	\$274	\$822.00
Excavator	2	EA	-	\$274	-	\$274	\$548.00
Loader	1	EA	-	\$274	-	\$274	\$274.00
Roller	1	EA	-	\$274	-	\$274	\$274.00
							<u>\$2,192.00</u>
Area Cost Factor						69%	\$1,512.48
Subcontractor Overhead						5%	\$75.62
SUBTOTAL							<u>\$1,588.10</u>
Subcontractor Profit						10%	\$158.81
SUBTOTAL							<u>\$1,746.91</u>
Contractor Overhead						5%	\$87.35
SUBTOTAL							<u>\$1,834.26</u>
Contractor Profit						10%	\$183.43
TOTAL UNIT COST							<u><u>\$2,017.69</u></u>

**Source of Cost Data:**  
Building Construction Cost Data, RS Means, 58th Edition, 2000

**Cost Adjustment Factor:**

FACTOR:  
H&S Productivity (labor & equip) ☐  
Escalation to Base Year ☐  
Area Cost Factor ☒  
Subcontractor Overhead & Prof. ☒  
Prime Contractor Overhead & Prof. ☒

NOTES:  
Not Applicable  
Escalation Factor of 1.00 for base year of 2001, cost information 2000  
0.69 localization factor for 052 zip code (Means)  
Assuming markup of 10% each for both Overhead and Profit.  
Assuming markup of 10% each for both Overhead and Profit.

Common costs

Capital Cost Sub-Element

**SUBMITTALS & IMPLEMENTATION PLANS****COST WORKSHEET**

**Site:** Pownal Tannery Site  
**Location:** Pownal, Vt  
**Phase:** Feasibility Study  
**Base Year:** 2001  
**Date:** Apr-01

**Work Statement:**

Preconstruction submittals are assumed to include health and safety plan, construction QA/QC plan and spill prevention plan.

**Cost Analysis:**

DESCRIPTION	QTY	UNIT	LABOR	EQUIP	MTRL	UNIT TOTAL	TOTAL
Engineering							
Permitting	320	HR	\$75.00	\$0.00	\$0.00	\$75.00	\$24,000.00
Design	480	HR	\$75.00	\$0.00	\$0.00	\$75.00	\$36,000.00
Meetings	100	HR	\$75.00	\$0.00	\$0.00	\$75.00	\$7,500.00
Office Support							
Support staff	80	HR	\$40.00	\$0.00	\$0.00	\$40.00	\$3,200.00
Office Expenses	1	LS	\$0.00	\$0.00	\$5,000.00	\$5,000.00	\$5,000.00
<b>SUBTOTAL</b>							<b>\$75,700.00</b>
Subcontractor Overhead						5%	\$3,785.00
<b>SUBTOTAL</b>							<b>\$79,485.00</b>
Subcontractor Profit						10%	\$7,948.50
<b>SUBTOTAL</b>							<b>\$87,433.50</b>
Contractor Overhead						5%	\$4,371.68
<b>SUBTOTAL</b>							<b>\$91,805.18</b>
Contractor Profit						10%	\$9,180.52
<b>TOTAL UNIT COST</b>							<b>\$100,985.69</b>

**Source of Cost Data:**

Engineering judgement

Alternative 4  
Capital Cost Sub-Element  
**TEMPORARY FACILITIES AND UTILITIES**

**COST WORKSHEET**

Site: Pownal Tannery Site  
Location: Pownal, Vt  
Phase: Feasibility Study  
Base Year: 2001  
Date: Apr-01

**Work Statement:**

Assuming onsite construction time of 35.2 weeks at 4 weeks/month. Mobilize/Rent support facilities for estimated duration of site work.

**Cost Analysis:**

DESCRIPTION (Local)	QTY	UNIT	LABOR	EQUIP	MTRL	UNIT TOTAL	TOTAL
Mob/Demob Temporary Storage Trailer (2 units)	2	EA	-	-	-	\$340	\$680
Temporary Storage Trailer (2 units)	18	MO	-	-	-	\$150	\$2,625
Temporary Fencing	2,100	LF	-	-	-	\$6.90	\$14,490
Portable Toilets - Chemical (3 units)	26	MO	-	-	-	\$75	\$1,969
Mob/Demob Temporary Office with steps (2 Units)	2	EA	-	-	-	\$430	\$860
Temporary Office with steps (2 Units)	18	MO	-	-	-	\$540	\$9,450
Install power poles (2)	2	EA	-	-	-	\$2,847	\$5,694
Utility connection/disconnection	2	EA	\$0	\$0	\$2,000	\$2,000	\$4,000
Utilities (phone and electric)	9	MO	\$0	\$0	\$500	\$500	\$4,375
<b>SUBTOTAL - Local</b>							<b>\$44,143</b>
DESCRIPTION (Means)	QTY	UNIT	LABOR	EQUIP	MTRL	TOTAL	TOTAL
Decontamination Trailer	9	MO	\$0	\$0	\$2,275	\$2,275	\$19,906
Area Cost Factor						69%	\$13,735.31
<b>SUBTOTAL (Local and Means)</b>							<b>\$57,878</b>
Subcontractor Overhead						5%	\$2,893.90
<b>SUBTOTAL</b>							<b>\$60,771.97</b>
Subcontractor Profit						10%	\$6,077.20
<b>SUBTOTAL</b>							<b>\$66,849.16</b>
Contractor Overhead						5%	\$3,342
<b>SUBTOTAL</b>							<b>\$70,192</b>
Contractor Profit						10%	\$7,019.16
<b>TOTAL UNIT COST</b>							<b>\$77,211</b>

**Source of Cost Data:**

Environmental Remediation Cost Data, RS Means, 6th Edition, 2000  
Local unit costs from on ongoing project.

**Cost Adjustment Factor:**

FACTOR:  
H&S Productivity (labor & equip) ☐  
Escalation to Base Year ☐  
Area Cost Factor ☒  
Subcontractor Overhead & Prof. ☒  
Prime Contractor Overhead & Prof. ☒

NOTES:  
Not Applicable  
Escalation Factor of 1.00 for base year of 2001, cost information 2000  
0.69 localization factor for 052 zip code (Means)  
Assuming markup of 10% each for both Overhead and Profit.  
Assuming markup of 10% each for both Overhead and Profit.

Common Costs  
Capital Cost Sub-Element  
FIELD OFFICE SUPPLIES

COST WORKSHEET

Site: Pownal Tannery Site  
Location: Pownal, Vt  
Phase: Feasibility Study  
Base Year: 2001  
Date: Apr-01

Work Statement:

Purchase miscellaneous field office supplies.

Cost Analysis:

DESCRIPTION	QTY	UNIT	LABOR	EQUIP	MTRL	UNIT TOTAL	TOTAL	
<b>Office Supplies</b>								
Cordless phone with answering machine	2	EA	\$0.00	\$0.00	\$90.00	\$90.00	\$180.00	
Computer	2	MO	\$0.00	\$0.00	\$480.00	\$480.00	\$960.00	\$40/MO for 6Mo
Surge Protectors	2	EA	\$0.00	\$0.00	\$28.49	\$28.49	\$56.98	
Floppy disks	2	PACK	\$0.00	\$0.00	\$9.99	\$9.99	\$19.98	40/PACK
Printer/fax/copier	1	EA	\$0.00	\$0.00	\$199.97	\$199.97	\$199.97	
HP Printer toner	20	EA	\$0.00	\$0.00	\$29.99	\$29.99	\$599.80	
Standard Task Chair	5	EA	\$0.00	\$0.00	\$119.75	\$119.75	\$598.75	
Standard Folding Chair	5	CARTON	\$0.00	\$0.00	\$77.35	\$77.35	\$386.75	5/CARTON
Shelving	2	EA	\$0.00	\$0.00	\$317.50	\$317.50	\$635.00	H74xW36xD21
Folding Tables - Heritage Series	2	EA	\$0.00	\$0.00	\$102.15	\$102.15	\$204.30	H29xW30xL96
Pens	10	PACK	\$0.00	\$0.00	\$3.89	\$3.89	\$38.90	60/PACK
Paper	20	CASE	\$0.00	\$0.00	\$20.99	\$20.99	\$419.80	5000/CASE
Pencils	10	PACK	\$0.00	\$0.00	\$3.19	\$3.19	\$31.90	48/PACK
Highlighters	5	PACK	\$0.00	\$0.00	\$4.35	\$4.35	\$21.75	43/PACK
Notepads	10	EA	\$0.00	\$0.00	\$4.35	\$4.35	\$43.50	
Sharpies (thick)	25	EA	\$0.00	\$0.00	\$1.52	\$1.52	\$38.00	
Sharpies (Thin)	50	EA	\$0.00	\$0.00	\$0.79	\$0.79	\$39.50	
Stapler	4	EA	\$0.00	\$0.00	\$9.99	\$9.99	\$39.96	
Staples	2	BOX	\$0.00	\$0.00	\$2.99	\$2.99	\$5.98	1000/BOX
Staple remover	4	EA	\$0.00	\$0.00	\$0.69	\$0.69	\$2.76	
Scotch Tape	5	EA	\$0.00	\$0.00	\$1.22	\$1.22	\$6.10	
Paper clips	5	PACK	\$0.00	\$0.00	\$1.69	\$1.69	\$8.45	1000/PACK
Binder clips	5	PACK	\$0.00	\$0.00	\$3.55	\$3.55	\$17.75	60/PACK
Masking tape	5	PACK	\$0.00	\$0.00	\$5.29	\$5.29	\$26.45	4/PACK
Hanging folders	5	BOX	\$0.00	\$0.00	\$3.99	\$3.99	\$19.95	25/BOX
Manila folders	2	BOX	\$0.00	\$0.00	\$4.19	\$4.19	\$8.38	100/BOX
Scissors	4	PACK	\$0.00	\$0.00	\$16.25	\$16.25	\$65.00	2/PACK
Engineer's scale	5	EA	\$0.00	\$0.00	\$3.65	\$3.65	\$18.25	
Tacks	5	PACK	\$0.00	\$0.00	\$0.25	\$0.25	\$1.25	100/PACK
Post-it-notes (4"x6")	5	PACK	\$0.00	\$0.00	\$6.99	\$6.99	\$34.95	6/PACK
Post-it-notes (3"x4")	5	PACK	\$0.00	\$0.00	\$10.99	\$10.99	\$54.95	12/PACK
Post-it-notes (1.5"x2")	5	PACK	\$0.00	\$0.00	\$4.19	\$4.19	\$20.95	12/PACK
Mag-Lite Flashlight	5	EA	\$0.00	\$0.00	\$24.95	\$24.95	\$124.75	L=8.5"
Batteries (AA)	10	PACK	\$0.00	\$0.00	\$6.15	\$6.15	\$61.50	8/PACK
Batteries (AAA)	5	PACK	\$0.00	\$0.00	\$8.49	\$8.49	\$42.45	12/PACK
Batteries (C)	5	PACK	\$0.00	\$0.00	\$9.99	\$9.99	\$49.95	8/PACK
Soft Wastebaskets	4	EA	\$0.00	\$0.00	\$8.20	\$8.20	\$32.80	H19xW15xD11
55-gal Waste Containers	5	EA	\$0.00	\$0.00	\$62.95	\$62.95	\$314.75	
Paper towels	50	PACK	\$0.00	\$0.00	\$15.75	\$15.75	\$787.50	15/PACK
Trash bags	50	PACK	\$0.00	\$0.00	\$8.49	\$8.49	\$424.50	50/PACK
Broom	1	EA	\$0.00	\$0.00	\$9.19	\$9.19	\$9.19	
Dust pan	1	EA	\$0.00	\$0.00	\$5.15	\$5.15	\$5.15	
Disinfectant Cleaner	5	EA	\$0.00	\$0.00	\$6.59	\$6.59	\$32.95	
First Aid Kit	1	EA	\$0.00	\$0.00	\$26.10	\$26.10	\$26.10	
Emergency Eye Wash Station	1	EA	\$0.00	\$0.00	\$24.15	\$24.15	\$24.15	
Extension cord (50')	3	EA	\$0.00	\$0.00	\$19.90	\$19.90	\$59.70	
Locks (2")	10	EA	\$0.00	\$0.00	\$11.55	\$11.55	\$115.50	
Locks (3/4")	10	EA	\$0.00	\$0.00	\$8.25	\$8.25	\$82.50	
Shipping Allowance	1	LS	-	-	-	\$5,000.00	\$5,000.00	
<b>SUBTOTAL</b>							<b>\$11,999.45</b>	



Common Costs  
Capital Cost Sub-Element  
FIELD OFFICE SUPPLIES

## COST WORKSHEET

Site: Pownal Tannery Site  
Location: Pownal, Vt  
Phase: Feasibility Study  
Base Year: 2001  
Date: Apr-01

Subcontractor Profit	10%	\$1,200
SUBTOTAL		\$13,199
Prime Contractor Profit	10%	\$1,319.94
TOTAL UNIT COST		\$14,519

**Source of Cost Data:**

Equipment and supplies from local vendors.

**Cost Adjustment Factor:**

FACTOR:

H&S Productivity (labor & equip)	<input type="checkbox"/>
Escalation to Base Year	<input type="checkbox"/>
Area Cost Factor	<input type="checkbox"/>
Subcontractor Profit	<input checked="" type="checkbox"/>
Prime Contractor Profit	<input checked="" type="checkbox"/>

NOTES:

- No labor involved, material costs
- 2001 material costs
- No area cost factor applied; Not applicable
- Assuming markup of 10%
- Assuming markup of 10%

Common costs

Capital Cost Sub-Element

POST-CONSTRUCTION SUBMITTALS

## COST WORKSHEET

**Site:** Pownal Tannery Site  
**Location:** Pownal, VT  
**Phase:** Feasibility Study  
**Base Year:** 2001  
**Date:** Apr-01

**Work Statement:**

**Cost Analysis:**

DESCRIPTION	QTY	UNIT	LABOR	EQUIP	MTRL	UNIT TOTAL	TOTAL
Engineering	240	HR	\$75.00	\$0.00	\$0.00	\$75.00	\$18,000.00
Office Support							
Support staff	40	HR	\$40.00	\$0.00	\$0.00	\$40.00	\$1,600.00
Office Expenses	1	LS	\$0.00	\$0.00	\$2,500.00	\$2,500.00	\$2,500.00
SUBTOTAL							\$22,100.00
Subcontractor Overhead						5%	\$1,105.00
SUBTOTAL							\$23,205.00
Subcontractor Profit						10%	\$2,320.50
SUBTOTAL							\$25,525.50
Contractor Overhead						5%	\$1,276.28
SUBTOTAL							\$26,801.78
Contractor Profit						10%	\$2,680.18
TOTAL UNIT COST							\$29,481.95

**Source of Cost Data:**

Engineering judgement

Alternative 4

Capital Cost Sub-Element

## SITE GENERAL EQUIPMENT &amp; SUPPLIES

## COST WORKSHEET

Site: Pownal Tannery Site

Location: Pownal, VT

Phase: Feasibility Study

Base Year: 2001

Date: Apr-01

## Work Statement:

Purchase/rental of general equipment and supplies.

## Cost Analysis:

DESCRIPTION (Local)	QTY	UNIT	LABOR	EQUIP	MTRL	UNIT TOTAL	TOTAL
Construction Signs	4	EA	\$0.00	\$0.00	\$82.80	\$82.80	\$331.20
Install/Remove Dumpsters	2	EA	-	-	-	\$100.00	\$200.00
Dumpsters (2 Units)	18	MO	-	-	-	\$30.00	\$525.00
Install/Remove Water Coolers	2	EA	-	-	-	\$100.00	\$200.00
Water Cooler (2 Units)	18	MO	-	-	-	\$125.00	\$2,187.50
SUBTOTAL							\$3,443.70

DESCRIPTION (Means)	QTY	UNIT	LABOR	EQUIP	MTRL	TOTAL	TOTAL
SUV Rental	9	MO	\$0.00	\$0.00	\$720.00	\$720.00	\$6,300.00
Pickup Truck Rental	9	MO	\$0.00	\$0.00	\$720.00	\$720.00	\$6,300.00
Generator 250KW	9	MO	\$0.00	\$3,000.00	\$0.00	\$3,000.00	\$26,250.00
SUBTOTAL							\$38,850.00

Area Cost Factor 69% \$26,806.50

SUBTOTAL (Local & Means) \$30,250

Subcontractor Overhead 5% \$1,513

SUBTOTAL \$31,762.71

Subcontractor Profit 10% \$3,176.27

SUBTOTAL \$34,938.98

DESCRIPTION (Subcontractor Costs)	QTY	UNIT	LABOR	EQUIP	MTRL	TOTAL	TOTAL
Weather Station	9	MO	\$0.00	\$0.00	\$360.00	\$360.00	\$3,150.00
Camera	35	WK	\$0.00	\$0.00	\$5.00	\$5.00	\$175.00
Tool Box	9	MO	\$0.00	\$0.00	\$60.00	\$60.00	\$525.00
							\$3,850.00

SUBTOTAL (Local, Means & Sub) \$38,788.98

Contractor Overhead 5% \$1,939.45

SUBTOTAL \$40,728.43

Contractor Profit 10% \$4,072.84

TOTAL UNIT COSTS \$44,801

## Source of Cost Data:

Local vendor and costs from internal ongoing projects.

Building Construction Cost Data, RSMeans, 58th Edition, 2000

## Cost Adjustment Factor:

FACTOR:

H&S Productivity (labor & equip) ☐

Escalation to Base Year ☐

Area Cost Factor ☒

Subcontractor Overhead & Prof. ☒

Prime Contractor Overhead & Prof. ☒

## NOTES:

Not applicable

Escalation Factor of 1.00 for base year of 2001, cost information 2000

0.69 localization factor for 052 zip code (Means)

Assuming markup of 10% each for both Overhead and Profit.

Assuming markup of 10% each for both Overhead and Profit.

## COMMON COST

Capital Cost Sub-Element

## CONTINUOUS AIR MONITORING

## COST WORKSHEET

Site: Pownal Tannery Site

Location: Pownal, VT

Phase: Feasibility Study

Base Year: 2001

Date: Apr-01

## Work Statement:

Continuous air monitoring around site perimeter at 8 hrs/day and 5 days/wk. Conducted during full implementation of each alternative.

## Cost Analysis:

DESCRIPTION (Local)	QTY	UNIT	LABOR	EQUIP	MTRL	UNIT TOTAL	TOTAL
Flame-ionization detector - Rent	1	MO	\$0.00	\$0.00	\$640.00	\$640.00	\$640.00
Cal-gas	1	EA	\$0.00	\$0.00	\$120.00	\$120.00	\$120.00
Industrial Scientific MG140 gas meter	1	MO	\$0.00	\$0.00	\$400.00	\$400.00	\$400.00
103L Cylinder of CO, H2S, O2, Pentane Cal gas	0.5	CYL	\$0.00	\$0.00	\$300.00	\$300.00	\$150.00
<b>SUBTOTAL</b>							<b>\$1,310.00</b>
Subcontractor Overhead						5%	\$65.50
<b>SUBTOTAL</b>							<b>\$1,375.50</b>
Subcontractor Profit						10%	\$137.55
<b>SUBTOTAL</b>							<b>\$1,513.05</b>
<b>DESCRIPTION (Subcontractor)</b>	<b>QTY</b>	<b>UNIT</b>	<b>LABOR</b>	<b>EQUIP</b>	<b>MTRL</b>	<b>TOTAL</b>	<b>TOTAL</b>
Walkie Talkies - Rent (3 pair)	1	MO	\$0.00	\$0.00	\$360.00	\$360.00	\$360.00
Miniram Aerosol Monitor (5 Units)	1	MO	\$0.00	\$0.00	\$360.00	\$360.00	\$360.00
Laborers (1 @ \$55/hr)	0.25	MO	\$8,800.00	\$0.00	\$0.00	\$8,800.00	\$2,200.00
<b>SUBTOTAL</b>							<b>\$2,920.00</b>
<b>SUBTOTAL (Local and Subcontractor)</b>							<b>\$4,433</b>
Contractor Overhead						5%	\$221.65
<b>SUBTOTAL</b>							<b>\$4,654.70</b>
Contractor Profit						10%	\$465.47
<b>TOTAL UNIT COST/MO</b>							<b>\$5,120.17</b>

## Source of Cost Data:

Costs for rental equipment from vendors.

## Cost Adjustment Factor:

## FACTOR:

H&S Productivity (labor & equip) ☐Escalation to Base Year ☐Area Cost Factor ☐Subcontractor Overhead & Prof. ☒Prime Contractor Overhead & Prof. ☒

## NOTES:

Level D

Escalation Factor of 1.00 for base year of 2001, cost information 2000

0.69 localization factor for 052 zip code (Means)

Assuming markup of 10% each for both Overhead and Profit.

Assuming markup of 10% each for both Overhead and Profit.

Alternative 4  
Capital Cost Sub-Element  
**CLEAR AND GRUB**

## COST WORKSHEET

Site: Pownal Tannery Site  
Location: Pownal, Vt  
Phase: Feasibility Study  
Base Year: 2001  
Date: Apr-01

### Work Statement:

Clear and grub to facilitate excavation, consolidation and hauling. Material to be disposed of onsite.

### Cost Analysis:

DESCRIPTION	QTY	UNIT	LABOR	EQUIP	MTRL	UNIT TOTAL	TOTAL
Heavy Brush without Grub, Chipping	11	ACRE	\$909.73	\$1,055.00	\$0.00	\$1,964.73	\$22,243.49
SUBTOTAL							\$22,243
Area Cost Factor						69%	\$15,348.01
Subcontractor Overhead						5%	\$767
SUBTOTAL							\$16,115
Subcontractor Profit						10%	\$1,612
SUBTOTAL							\$17,727
Contractor Overhead						5%	\$886.35
SUBTOTAL							\$18,613
Contractor Profit						10%	\$1,861
TOTAL UNIT COST							\$20,474.62

### Source of Cost Data:

Environmental Remediation Cost Data, RS Means, 6th Edition, 2000

### Cost Adjustment Factor:

FACTOR:  
H&S Productivity (labor & equip) ☐  
Escalation to Base Year ☐  
Area Cost Factor ☒  
Subcontractor Overhead & Prof. ☒  
Prime Contractor Overhead & Prof. ☒

NOTES:  
Level D  
Escalation Factor of 1.00 for base year of 2001, cost information 2000  
0.69 localization factor for 052 zip code (Means)  
Assuming markup of 10% each for both Overhead and Profit.  
Assuming markup of 10% each for both Overhead and Profit.

Alternative 4  
Capital Cost Sub-Element  
**EROSION/DUST CONTROL**

**COST WORKSHEET**

**Site:** Pownal Tannery Site  
**Location:** Pownal, Vt  
**Phase:** Feasibility Study  
**Base Year:** 2001  
**Date:** Apr-01

**Work Statement:**

Dust suppression/Pass cost at \$55.64/per acre using 3 acres; as needed application over period of excavation and cap construction - approx. 34 weeks at 5 days/wk and 1 pass/day. Silt fencing with hay bales installed along access road bordering river. Construction of sedimentation traps based on previous project. See Sub-Cost Worksheet for breakdown. Trench excavation volume taken as 1800' x 2' x 0.5'.

**Cost Analysis:**

DESCRIPTION (Means)	QTY	UNIT	LABOR	EQUIP	MTRL	UNIT TOTAL	TOTAL
Watering Truck - dust suppression/Pass	130	PASS	\$0.00	\$0.00	\$0.00	\$166.89	\$21,695.70
Silt Fence, poly, 3' high, adverse conditions	1800	LF	\$0.37	\$0.00	\$0.30	\$0.67	\$1,206.00
Hay Bales, Staked	1800	LF	\$0.21	\$0.07	\$2.00	\$2.28	\$4,104.00
Place and Remove Hay Bales (maintenance)	22	TONS	\$178.00	\$57.50	\$50.00	\$285.50	\$6,281.00
Trench excavation, 6" depth	70	CY	\$2.73	\$1.35	\$0.00	\$4.08	\$285.60
Sedimentation traps	1	LS	\$0.00	\$0.00	\$0.00	\$965.12	\$965.12
<b>SUBTOTAL - Means</b>							<b>\$34,537</b>
Area Cost Factor						69%	\$23,831
<b>DESCRIPTION (Local)</b>	<b>QTY</b>	<b>UNIT</b>	<b>LABOR</b>	<b>EQUIP</b>	<b>MTRL</b>	<b>TOTAL</b>	<b>TOTAL</b>
Water	7	MO	\$0.00	\$0.00	\$0.00	\$50.00	\$325.00
<b>SUBTOTAL (Local and means)</b>							<b>\$24,156</b>
Subcontractor Overhead						5%	\$1,208
<b>SUBTOTAL</b>							<b>\$25,364</b>
Subcontractor Profit						10%	\$2,536
<b>SUBTOTAL</b>							<b>\$27,900</b>
Contractor Overhead						5%	\$1,395.00
<b>SUBTOTAL</b>							<b>\$29,295</b>
Contractor Profit						10%	\$2,929
<b>TOTAL UNIT COST</b>							<b>\$32,224.46</b>

**Source of Cost Data:**

Building Construction Cost Data, RS Means, 58th Edition, 2000; Local cost estimate from an ongoing project.  
Environmental Remediation Cost Data, RS Means, 6th Edition, 2000

**Cost Adjustment Factor:**

**FACTOR:**  
H&S Productivity (labor & equip) ☐  
Escalation to Base Year ☐  
Area Cost Factor ☒  
Subcontractor Overhead & Prof. ☒  
Prime Contractor Overhead & Prof. ☒

**NOTES:**  
Not Applicable  
Escalation Factor of 1.00 for base year of 2001, cost information 2000  
0.69 localization factor for 052 zip code (Means)  
Assuming markup of 10% each for both Overhead and Profit.  
Assuming markup of 10% each for both Overhead and Profit.

Common Cost  
Capital Cost Sub-Element  
**SEDIMENTATION TRAPS**

**COST WORKSHEET**

Site: Pownal Tannery Site  
Location: Pownal, Vt  
Phase: Feasibility Study  
Base Year: 2001  
Date:

**Work Statement:**

Basin size of 50'x25'x6'. Inlet/Outlet structure dimensions approx 6'x6'x1.5'. Assuming 6" dia PE pipe.  
Marked up for O&P on erosion control cost worksheet.

**Cost Analysis:**

DESCRIPTION (Local)	QTY	UNIT	LABOR	EQUIP	MTRL	UNIT TOTAL	TOTAL
Geotextile non-woven	2.67	SY	\$0.00	\$0.00	\$0.00	\$1.50	\$4.00
1.5" Crushed Stone	10	TON	\$0.00	\$0.00	\$5.50	\$5.50	\$55.00
- Delivery	1	HR	\$0.00	\$0.00	\$0.00	\$40.00	\$40.00
<b>SUBTOTAL</b>							<b>\$99.00</b>

  

DESCRIPTION (Means)	QTY	UNIT	LABOR	EQUIP	MTRL	TOTAL	TOTAL
Excavation	278	CY	\$0.34	\$1.66	\$0.00	\$2.00	\$555.56
Rock Cover, Riprap, Heavy (25 to 500 lb)	6	CY	\$3.00	\$2.38	\$15.78	\$21.16	\$126.96
6" Diameter Polyvinyl Chloride Pipe	20	LF	\$1.72	\$4.59	\$2.87	\$9.18	\$183.60
							<b>\$866.12</b>
<b>SUBTOTAL</b>							<b>\$965.12</b>

**Source of Cost Data:**

Subcontractor estimate - geotextile installed, on 3/9/01. Soil estimates from local borrow source obtained on 2/27/01.  
Environmental Remediation Cost Data, RS Means, 6th Edition, 2000  
Building Construction Cost Data, RS Means, 58th Edition, 2000  
Marked up for O&P on element sheet for erosion control measures.

**Cost Adjustment Factor:**

FACTOR:  
H&S Productivity (labor & equip)   
Escalation to Base Year   
Area Cost Factor   
Subcontractor Overhead & Prof.   
Prime Contractor Overhead & Prof.

NOTES:  
Level D  
Escalation Factor of 1.00 for base year of 2001, cost information 2000  
0.69 localization factor for 052 zip code (Means)  
Assuming markup of 10% each for both Overhead and Profit.  
Assuming markup of 10% each for both Overhead and Profit.

Common Costs  
Capital Cost Sub-Element  
**TEMPORARY ACCESS ROADS (COST PER 100LF)**

**COST WORKSHEET**

Site: Pownal Tannery Site  
Location: Pownal, VT  
Phase: Feasibility Study  
Base Year: 2001  
Date: Apr-01

**Work Statement:**

Install temporary access roads into lagoons for transport of excavated materials to on-site stockpile areas.

**Cost Analysis:**

DESCRIPTION (Local)	QTY	UNIT	LABOR	EQUIP	MTRL	UNIT TOTAL	TOTAL
Common Fill - Subgrade	289	TON	\$0.00	\$0.00	\$3.00	\$3.00	\$866.67
Crushed Stone	48.1	TON	\$0.00	\$0.00	\$5.00	\$5.00	\$240.74
SUBTOTAL							\$1,107.41
DESCRIPTION (Means)	QTY	UNIT	LABOR	EQUIP	MTRL	TOTAL	TOTAL
Excavation of Fill at pit	222	CY	\$0.34	\$1.66	\$0.00	\$2.00	\$444.44
Loading of Fill at pit	222	CY	\$0.39	\$1.91	\$0.00	\$2.30	\$511.11
Hauling Fill, 10 mi round trip	222	CY	\$1.66	\$5.10	\$0.00	\$6.76	\$1,502.22
Excavation of ROC at pit	37	CY	\$0.34	\$1.66	\$0.00	\$2.00	\$74.07
Loading of ROC at pit	37	CY	\$0.39	\$1.91	\$0.00	\$2.30	\$85.19
Hauling ROC, 10 mi round trip	37	CY	\$1.66	\$5.10	\$0.00	\$6.76	\$250.37
Prepare and roll subbase, small area	222	SY	\$0.43	\$0.63	\$0.00	\$1.06	\$235.56
Spread/Compact ROC, 6" lifts	222	SY	\$0.31	\$0.59	\$0.00	\$0.90	\$200.00
Geotechnical	1	EA	\$67.67	\$0.00	\$86.98	\$154.65	\$154.65
SUBTOTAL							\$3,457.61
Area Cost Factor						69%	\$2,386
SUBTOTAL (Local and Means)							\$3,493
Subcontractor Overhead						5%	\$174.66
SUBTOTAL							\$3,667.82
Subcontractor Profit						10%	\$366.78
SUBTOTAL							\$4,034.60
DESCRIPTION (Subcontractor)	QTY	UNIT	LABOR	EQUIP	MTRL	TOTAL	TOTAL
In-Place Density (Means)	1	EA	\$0.00	\$0.00	\$0.00	\$26.68	\$26.68
Geotextile	222	SY	\$0.00	\$0.00	\$0.00	\$1.50	\$333.33
SUBTOTAL							\$360.02
SUBTOTAL (Local, Means and Sub)							\$4,394.62
Contractor Overhead						5%	\$219.73
SUBTOTAL							\$4,614.35
Contractor Profit						10%	\$461.43
TOTAL UNIT COST/100 LF							<b>\$5,075.78</b>

**Source of Cost Data:**

Soil material quotes from local borrow source.

**Cost Adjustment Factor:**

FACTOR:	
H&S Productivity (labor & equip)	<input type="checkbox"/>
Escalation to Base Year	<input type="checkbox"/>
Area Cost Factor	<input checked="" type="checkbox"/>
Subcontractor Overhead & Prof.	<input checked="" type="checkbox"/>
Prime Contractor Overhead & Prof.	<input checked="" type="checkbox"/>

**NOTES:**

Level D

Escalation Factor of 1.00 for base year of 2001, cost information 2000

0.69 localization factor for 052 zip code (Means)

Assuming markup of 10% each for both Overhead and Profit.

Assuming markup of 10% each for both Overhead and Profit.



Common Costs  
Capital Cost Sub-Element  
**TEMPORARY ACCESS ROADS (COST PER 100LF)**

**COST WORKSHEET**

**Site:** Pownal Tannery Site  
**Location:** Pownal, Vt  
**Phase:** Feasibility Study  
**Base Year:** 2001  
**Date:** Apr-01

**Work Statement:**

Install temporary access roads for transport of excavated materials. 6 inches of crushed stone.

**Cost Analysis:**

DESCRIPTION (Local)	QTY	UNIT	LABOR	EQUIP	MTRL	UNIT TOTAL	TOTAL
Common Fill - Subgrade	0	TON	\$0.00	\$0.00	\$3.00	\$3.00	\$0.00
Crushed Stone	48.1	TON	\$0.00	\$0.00	\$5.00	\$5.00	\$240.74
<b>SUBTOTAL</b>							<b>\$240.74</b>

DESCRIPTION (Means)	QTY	UNIT	LABOR	EQUIP	MTRL	TOTAL	TOTAL
Excavation of Fill at pit	0	CY	\$0.34	\$1.66	\$0.00	\$2.00	\$0.00
Loading of Fill at pit	0	CY	\$0.39	\$1.91	\$0.00	\$2.30	\$0.00
Hauling Fill, 10 mi round trip	0	CY	\$1.66	\$5.10	\$0.00	\$6.76	\$0.00
Excavation of ROC at pit	37	CY	\$0.34	\$1.66	\$0.00	\$2.00	\$74.07
Loading of ROC at pit	37	CY	\$0.39	\$1.91	\$0.00	\$2.30	\$85.19
Hauling ROC, 10 mi round trip	37	CY	\$1.66	\$5.10	\$0.00	\$6.76	\$250.37
Prepare and roll subbase, small area	222	SY	\$0.43	\$0.63	\$0.00	\$1.06	\$235.56
Spread/Compact ROC, 6" lifts	222	SY	\$0.31	\$0.59	\$0.00	\$0.90	\$200.00
Geotechnical	1	EA	\$67.67	\$0.00	\$86.98	\$154.65	\$154.65
<b>SUBTOTAL</b>							<b>\$999.84</b>

Area Cost Factor	69%	\$690
<b>SUBTOTAL (Local and Means)</b>		<b>\$931</b>

Subcontractor Overhead	5%	\$46.53
<b>SUBTOTAL</b>		<b>\$977.16</b>
Subcontractor Profit	10%	\$97.72
<b>SUBTOTAL</b>		<b>\$1,074.87</b>

DESCRIPTION (Subcontractor)	QTY	UNIT	LABOR	EQUIP	MTRL	TOTAL	TOTAL
In-Place Density (Means)	1	EA	\$0.00	\$0.00	\$0.00	\$26.68	\$26.68
Geotextile	222	SY	\$0.00	\$0.00	\$0.00	\$1.50	\$333.33
<b>SUBTOTAL</b>							<b>\$360.02</b>

<b>SUBTOTAL (Local, Means and Sub)</b>		<b>\$1,434.89</b>
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Contractor Overhead	5%	\$71.74
<b>SUBTOTAL</b>		<b>\$1,506.63</b>
Contractor Profit	10%	\$150.66

<b>TOTAL UNIT COST/100 LF</b>		<b>\$1,657.30</b>
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**Source of Cost Data:**

Soil material quotes from local borrow source.

**Cost Adjustment Factor:**

<b>FACTOR:</b>	
H&S Productivity (labor & equip)	<input type="checkbox"/>
Escalation to Base Year	<input type="checkbox"/>
Area Cost Factor	<input checked="" type="checkbox"/>
Subcontractor Overhead & Prof.	<input checked="" type="checkbox"/>
Prime Contractor Overhead & Prof.	<input checked="" type="checkbox"/>

**NOTES:**

Level D

Escalation Factor of 1.00 for base year of 2001, cost information 2000

0.69 localization factor for 052 zip code (Means)

Assuming markup of 10% each for both Overhead and Profit.

Assuming markup of 10% each for both Overhead and Profit.

Alternative 4  
Capital Cost Sub-Element  
**PERIMETER FENCE**

## COST WORKSHEET

**Site:** Pownal Tannery Site  
**Location:** Pownal, VT  
**Phase:** Feasibility Study  
**Base Year:** 2001  
**Date:** Apr-01

**Work Statement:**

Assuming completion time of 3 weeks. Remove existing fence around Lagoons 1 & 2; Construct fence around outside perimeter of Lagoons; Install fence post every 10' with concrete pads placed to a depth of 4' and having a 1' diameter.

**Cost Analysis:**

DESCRIPTION	QTY	UNIT	LABOR	EQUIP	MTRL	UNIT TOTAL	TOTAL
Remove existing	1.4	2000 LF	-	-	-	\$40,000.00	\$56,000.00
7' Galvanized Chain-Link Fence	2300	LF	\$1.31	\$0.00	\$26.17	\$27.48	\$63,204.00
<b>SUBTOTAL</b>							<b>\$119,204.00</b>

Contractor Overhead	5%	\$5,960.20
<b>SUBTOTAL</b>		<b>\$125,164.20</b>
Contractor Profit	10%	\$12,516.42
<b>TOTAL UNIT COST</b>		<b>\$137,680.62</b>

**Source of Cost Data:**

Building Construction Cost Data, RS Means, 58th Edition, 2000  
Environmental Remediation Cost Data, RS Means, 6th Edition, 2000

**Cost Adjustment Factor:**

**FACTOR:**  
H&S Productivity (labor & equip) ☐  
Escalation to Base Year ☐  
Area Cost Factor ☒  
Subcontractor Overhead & Prof. ☒  
Prime Contractor Overhead & Prof. ☒

**NOTES:**  
Level D  
Escalation Factor of 1.00 for base year of 2001, cost information 2000  
0.69 localization factor for 052 zip code (Means)  
Assuming markup of 10% each for both Overhead and Profit.  
Assuming markup of 10% each for both Overhead and Profit.

COMMON COST  
Capital Cost Sub-Element  
**BACKFILL LAGOON 2**

**COST WORKSHEET**

Site: Pownal Tannery Site  
Location: Pownal, VT  
Phase: Feasibility Study  
Base Year: 2001  
Date: Apr-01

**Work Statement:**

In-place density at 1 Test/acre/6" lift over 10 ft corresponds to 20 lifts for roughly 2 acres.

**Cost Analysis:**

DESCRIPTION (Local)	QTY	UNIT	LABOR	EQUIP	MTRL	UNIT TOTAL	TOTAL
Common Fill to Elev. 508'	30,976	TON	\$0.00	\$0.00	\$3.00	\$3.00	\$92,928.00
Gravel to Elev. 510' (1.5" crushed)	7,744	TON	\$0.00	\$0.00	\$5.50	\$5.50	\$42,592.00
							<u>\$135,520.00</u>

DESCRIPTION (Means)	QTY	UNIT	LABOR	EQUIP	MTRL	TOTAL	TOTAL
Excavation of Fill at pit	25,813	CY	\$0.34	\$1.66	\$0.00	\$2.00	\$51,626.67
Loading of Fill at pit	25,813	CY	\$0.39	\$1.91	\$0.00	\$2.30	\$59,370.67
Hauling Fill, 10 mi round trip	25,813	CY	\$1.66	\$5.10	\$0.00	\$6.76	\$174,498.13
Spreading in 8" layers, small dozer	25,813	CY	\$0.30	\$0.76	\$0.00	\$1.06	\$27,362.13
Compaction Fill, 6" to 12" lifts, vibrating roller	25,813	CY	\$0.40	\$1.15	\$0.00	\$1.55	\$40,010.67

SUBTOTAL \$352,868.27

Area Cost Factor 69% \$243,479

SUBTOTAL (Local and Means) \$378,999

Subcontractor Overhead 5% \$18,949.96

SUBTOTAL \$397,949.06

Subcontractor Profit 10% \$39,794.91

SUBTOTAL \$437,743.97

DESCRIPTION (Subcontractor)	QTY	UNIT	LABOR	EQUIP	MTRL	TOTAL	TOTAL
In-Place Density (Means)	40	EA	\$0.00	\$0.00	\$0.00	\$26.68	\$1,067.29

SUBTOTAL (Local, Means and Sub) \$438,811.26

Contractor Overhead 5% \$21,940.56

SUBTOTAL \$460,751.82

Contractor Profit 10% \$46,075.18

**TOTAL UNIT COST** **\$506,827.00**

**Source of Cost Data:**

Local costs obtained from borrow source on 2/27/01.  
Building Construction Cost Data, RS Means, 58th Edition, 2000

**Cost Adjustment Factor:**

FACTOR:  
H&S Productivity (labor & equip) ☐  
Escalation to Base Year ☐  
Area Cost Factor ☒  
Subcontractor Overhead & Prof. ☒  
Prime Contractor Overhead & Prof. ☒

NOTES:  
Level D  
Escalation Factor of 1.00 for base year of 2001, cost information 2000  
0.69 localization factor for 052 zip code (Means)  
Assuming markup of 10% each for both Overhead and Profit.  
Assuming markup of 10% each for both Overhead and Profit.

## Common Costs

Capital Cost Sub-Element

## DECONTAMINATION PAD - HEAVY EQUIPMENT (PER EACH)

## COST WORKSHEET

Site: Pownal Tannery Site  
 Location: Pownal, VT  
 Phase: Feasibility Study  
 Base Year: 2001  
 Date: Apr-01

## Work Statement:

Pad size 25 x 65; thickness of 8 inches.

## Cost Analysis:

DESCRIPTION	QTY	UNIT	LABOR	EQUIP	MTRL	UNIT TOTAL	TOTAL
<b>Construction:</b>							
Concrete pad - 8"	40	CY	\$78.00	\$0.98	\$116.00	\$194.98	\$7,823.27
Gravel base - 6"	30	CY	\$1.52	\$1.62	\$18.43	\$21.57	\$649.10
Curb	180	LF	\$0.68	\$0.00	\$1.06	\$1.74	\$313.20
Sump hole construction, incl ex & gravel, pit	75	CF	\$0.46	\$0.16	\$0.56	\$1.18	\$88.50
With 12" gravel collar, 12" pipe, corrugated, 16ga	180	LF	\$8.25	\$2.90	\$11.90	\$23.05	\$4,149.00
<b>SUBTOTAL</b>							<b>\$13,023.07</b>
Area Cost Factor						69%	\$8,986
<b>SUBTOTAL</b>							<b>\$22,009</b>
Subcontractor Overhead						5%	\$1,100.45
<b>SUBTOTAL</b>							<b>\$23,109.44</b>
Subcontractor Profit						10%	\$2,310.94
<b>SUBTOTAL</b>							<b>\$25,420.38</b>
Contractor Overhead						5%	\$1,271.02
<b>SUBTOTAL</b>							<b>\$26,691.40</b>
Contractor Profit						10%	\$2,669.14
<b>TOTAL UNIT COST</b>							<b>\$29,360.54</b>
<b>Operation:</b>							
4" Dia Contractor's Trash Pump, 300 GPM	1	DAY	\$10.41	\$0.00	\$59.19	\$69.60	\$69.60
Area Cost Factor						69%	\$48
<b>SUBTOTAL</b>							<b>\$118</b>
Subcontractor Overhead						5%	\$5.88
<b>SUBTOTAL</b>							<b>\$123.51</b>
Subcontractor Profit						10%	\$12.35
<b>SUBTOTAL</b>							<b>\$135.86</b>
Contractor Overhead						5%	\$6.79
<b>SUBTOTAL</b>							<b>\$142.65</b>
Contractor Profit						10%	\$14.26
<b>TOTAL UNIT COST</b>							<b>\$156.91</b>

## Source of Cost Data:

Building Construction Cost Data, RSMeans, 58th Edition, 2000  
 Environmental Remediation Cost Data, RS Means, 6th Edition, 2000

## Cost Adjustment Factor:

FACTOR:  
 H&S Productivity (labor & equip) ☐  
 Escalation to Base Year ☐  
 Area Cost Factor ☒  
 Subcontractor Overhead & Prof. ☒  
 Prime Contractor Overhead & Prof. ☒

## NOTES:

Level D  
 Escalation Factor of 1.00 for base year of 2001, cost information 2000  
 0.69 localization factor for 052 zip code (Means)  
 Assuming markup of 10% each for both Overhead and Profit.  
 Assuming markup of 10% each for both Overhead and Profit.

Common Costs  
Capital Cost Sub-Element  
**DECONTAMINATION PADS - PERSONNEL**

# **COST WORKSHEET**

**Site:** Pownal Tannery Site  
**Location:** Pownal, Vt  
**Phase:** Feasibility Study  
**Base Year:** 2001  
**Date:** Apr-01

**Work Statement:**

Pad size 6 x 6; thickness of 4 inches

**Cost Analysis:**

DESCRIPTION	QTY	UNIT	LABOR	EQUIP	MTRL	UNIT TOTAL	TOTAL
Concrete - 4"	0.44	CY	\$78.00	\$0.98	\$116.00	\$194.98	\$86.66
Gravel base - 4"	0.44	CY	\$1.52	\$1.62	\$18.43	\$21.57	\$9.59
Curb	24	LF	\$0.68	\$0.00	\$1.06	\$1.74	\$41.76
<b>SUBTOTAL</b>							<b>\$138.00</b>
Area Cost Factor						69%	\$95
<b>SUBTOTAL</b>							<b>\$233</b>
Subcontractor Overhead						5%	\$11.66
<b>SUBTOTAL</b>							<b>\$244.89</b>
Subcontractor Profit						10%	\$24.49
<b>SUBTOTAL</b>							<b>\$269.38</b>
Contractor Overhead						5%	\$13.47
<b>SUBTOTAL</b>							<b>\$282.85</b>
Contractor Profit						10%	\$28.28
<b>TOTAL UNIT COST</b>							<b>\$311.13</b>

**Source of Cost Data:**

Building Construction Cost Data, RSMeans, 58th Edition, 2000  
Environmental Remediation Cost Data, RS Means, 6th Edition, 2000

**Cost Adjustment Factor:**

**FACTOR:**  
H&S Productivity (labor & equip) ☐  
Escalation to Base Year ☐  
Area Cost Factor ☒  
Subcontractor Overhead & Prof. ☒  
Prime Contractor Overhead & Prof. ☒

**NOTES:**  
Level D  
Escalation Factor of 1.00 for base year of 2001, cost information 2000  
0.69 localization factor for 052 zip code (Means)  
Assuming markup of 10% each for both Overhead and Profit.  
Assuming markup of 10% each for both Overhead and Profit.

Common Costs  
Capital Cost Sub-Element  
**DEWATER STANDING WATER IN LAGOONS**

# **COST WORKSHEET**

**Site:** Pownal Tannery Site  
**Location:** Pownal, Vt  
**Phase:** Feasibility Study  
**Base Year:** 2001  
**Date:** Apr-01

**Work Statement:**

One 300 GPM pump operating for 24hrs/day. Pumping assumed to take 2 week to complete.

**Cost Analysis:**

DESCRIPTION	QTY	UNIT	LABOR	EQUIP	MTRL	UNIT TOTAL	TOTAL
4" Dia Contractor's Trash Pump, 300 GPM	7	DAY	\$10.41	\$0.00	\$59.19	\$69.60	\$487.20
Trash pump rental	0.38	MO	\$0.00	\$825.00	\$0.00	\$825.00	\$309.38
Hose, water, suction w/coupling, 20'L, 4" dia	0.38	MO	\$0.00	\$180.00	\$0.00	\$180.00	\$67.50
Discharge hose w/coupling, 50'L, 4" dia	0.38	MO	\$0.00	\$120.00	\$0.00	\$120.00	\$45.00
Laborers	7	DAY	\$500.00	\$0.00	\$0.00	\$500.00	\$3,500.00
<b>SUBTOTAL</b>							<b>\$4,409.08</b>
Area Cost Factor						69%	\$3,042
<b>SUBTOTAL</b>							<b>\$7,451</b>
Subcontractor Overhead						5%	\$372.57
<b>SUBTOTAL</b>							<b>\$7,824</b>
Subcontractor Profit						10%	\$782
<b>SUBTOTAL</b>							<b>\$8,606.29</b>
Contractor Overhead						5%	\$430.31
<b>SUBTOTAL</b>							<b>\$9,036.61</b>
Contractor Profit						10%	\$903.66
<b>TOTAL UNIT COST/ROUND</b>							<b>\$9,940</b>

**Source of Cost Data:**

Construction Cost Data, RS Means, 58th Edition, 2000; Local cost estimate from an ongoing project.  
Environmental Remediation Cost Data, RS Means, 6th Edition, 2000

**Cost Adjustment Factor:**

**FACTOR:**  
H&S Productivity (labor & equip) ☐  
Escalation to Base Year ☐  
Area Cost Factor ☒  
Subcontractor Overhead & Prof. ☒  
Prime Contractor Overhead & Prof. ☒

**NOTES:**

Level D  
Escalation Factor of 1.00 for base year of 2001, cost information 2000  
0.69 localization factor for 052 zip code (Means)  
Assuming markup of 10% each for both Overhead and Profit.  
Assuming markup of 10% each for both Overhead and Profit.

Common Cost  
Capital Cost Sub-Element  
**COLL. & TREAT. OF STANDING WATER IN LAGOONS**

**COST WORKSHEET**

**Site:** Pownal Tannery Site  
**Location:** Pownal, VT  
**Phase:** Feasibility Study  
**Base Year:** 2001  
**Date:** Apr-01

**Work Statement:**

Treat standing water in Lagoons 1, 2, 4 and 5 for construction activities; costs developed based on the following:  
2,000 lbs carbon/100,000 gals; 20,000 gal/Frac tank storage 8 carbon vessels (2 vessels/Carbon unit); each vessels holds 1,000 lbs of carbon and treats 50 gal/min of flow. Treatment volume: 2,841,000 gals; pumping rate of 300 gal/min operating for 24 hrs. Time to complete = 1.5 wks. Discharge treated water to 2 onsite infiltration galleries (20'x5'x5') lined with geotextile and backfilled with riprap. Estimate assumes no groundwater recharge and only one dewatering event for duration of project.

**Cost Analysis:**

DESCRIPTION (Local)	QTY	UNIT	LABOR	EQUIP	MTRL	UNIT TOTAL	TOTAL
Rental of Fragmentation Tanks	0.25	MO	\$0.00	\$0.00	\$30,000.00	\$30,000.00	\$7,500.00
Rental of Carbon Equipment & Operation (8 Units)	1.00	WK	\$0.00	\$0.00	\$12,000.00	\$12,000.00	\$12,000.00
Dewatering Equipment	0.25	MO	-	-	-	\$1,000.00	\$250.00
Material Cost - Carbon	30000	LB	\$0.00	\$0.00	\$0.65	\$0.65	\$19,500.00
Delivery	1	LS	-	-	-	\$10,000.00	\$10,000.00
Disposal of Carbon	30000	LB	\$0.00	\$0.00	\$1.00	\$1.00	\$30,000.00
Geotextile	22	SY	-	-	-	\$1.50	\$33.33
							<u>\$79,283.33</u>
<b>DESCRIPTION (Means)</b>							
Analytical Testing	12	EA	\$0.00	\$0.00	\$1,545.00	\$1,545.00	\$18,540.00
Rock Cover, Riprap, Light (10 to 100 lb)	37	CY	\$3.00	\$2.38	\$15.06	\$20.44	\$757.04
							<u>\$19,297.04</u>
Area Cost Factor						69%	\$13,315
<b>SUBTOTAL (Local &amp; Means)</b>							<u>\$92,598.29</u>
Subcontractor Overhead						5%	\$4,629.91
<b>SUBTOTAL</b>							<u>\$97,228</u>
Subcontractor Profit						10%	\$9,723
<b>SUBTOTAL</b>							<u>\$106,951.02</u>
Contractor Overhead						5%	\$5,347.55
<b>SUBTOTAL</b>							<u>\$112,298.57</u>
Contractor Profit						10%	\$11,229.86
<b>TOTAL UNIT COST/WK</b>							<u><b>\$123,528</b></u>

**Source of Cost Data:**

Local costs from an ongoing project; Geotextile estimate from local vendor.  
Construction Cost Data, RS Means, 58th Edition, 2000; Local cost estimate from an ongoing project.  
Environmental Remediation Cost Data, RS Means, 6th Edition, 2000

**Cost Adjustment Factor:**

<b>FACTOR:</b>	
H&S Productivity (labor & equip)	<input type="text"/>
Escalation to Base Year	<input type="text"/>
Area Cost Factor	<input checked="" type="checkbox"/>
Subcontractor Overhead & Prof.	<input checked="" type="checkbox"/>
Prime Contractor Overhead & Prof.	<input checked="" type="checkbox"/>

**NOTES:**

Level D  
Escalation Factor of 1.00 for base year of 2001, cost information 2000  
0.69 localization factor for 052 zip code (Means)  
Assuming markup of 10% each for both Overhead and Profit.  
Assuming markup of 10% each for both Overhead and Profit.

Alternative 4  
Capital Cost Sub-Element  
**EXCAVATION**

**COST WORKSHEET**

**Site:** Pownal Tannery Site  
**Location:** Pownal, VT  
**Phase:** Feasibility Study  
**Base Year:** 2001  
**Date:** Apr-01

**Work Statement:**

Estimated time to complete excavation of contaminated material is assumed to be 23 weeks. Excavation rate of approx. 60 CY/hr/excavator, two excavators. Excavated volume = 40,800 CY sludge; 13,904 CY of berm material; between Lagoons 1 and 5 and the Hoosic River and between Lag 1 and 5; 12,778 CY cover soils Lagoon 1. Hauling to dewatering pads or consolidation area.

**Cost Analysis:**

DESCRIPTION	QTY	UNIT	LABOR	EQUIP	MTRL	UNIT TOTAL	TOTAL	
32 Ft Dump Truck, 6 mil liner, disposable	330	EA	\$0.00	\$0.00	\$28.50	\$28.50	\$9,405.00	
Truck bed covers (20 SY)	3,300	SY	\$0.16	\$0.00	\$1.53	\$1.69	\$5,577.00	
Stripping topsoil & stockpiling, sandy loam								
400 HP dozer, adverse conditions	10,648	CY	\$0.16	\$0.70	\$0.00	\$0.86	\$9,157.28	
Excavation - Level B	18,216	CY	\$0.48	\$2.66	\$0.00	\$3.14	\$57,177.83	Level B
Excavation	36,488	CY	\$0.34	\$1.66	\$0.00	\$2.00	\$72,975.25	
Loading onto trucks - Level B	18,216	CY	\$0.12	\$0.64	\$0.00	\$0.75	\$13,722.68	Level B
Loading onto trucks	36,488	CY	\$0.05	\$0.25	\$0.00	\$0.30	\$10,946.29	
Hauling - Level B	18,216	CY	\$0.89	\$2.48	\$2.18	\$5.55	\$101,185.16	Level B
Hauling	36,488	CY	\$0.63	\$1.55	\$2.18	\$4.36	\$159,086.05	
Spread on dewatering pads	10,440	CY	\$0.34	\$1.66	\$0.00	\$2.00	\$20,880.00	
<b>SUBTOTAL</b>							<b>\$460,112.54</b>	
Area Cost Factor						69%	\$317,478	
Subcontractor Overhead						5%	\$15,873.88	
<b>SUBTOTAL</b>							<b>\$333,352</b>	
Subcontractor Profit						10%	\$33,335.15	
<b>SUBTOTAL</b>							<b>\$366,687</b>	
Contractor Overhead						5%	\$18,334.33	
<b>SUBTOTAL</b>							<b>\$385,021</b>	
Contractor Profit						10%	\$38,502	
							<b>\$423,523.13</b>	

**Source of Cost Data:**

Building Construction Cost Data, RS Means, 58th Edition, 2000  
Environmental Remediation Cost Data, RS Means, 6th Edition, 2000

**Cost Adjustment Factor:**

<b>FACTOR:</b>	
H&S Productivity (labor & equip)	<input checked="" type="checkbox"/>
Escalation to Base Year	<input type="checkbox"/>
Area Cost Factor	<input checked="" type="checkbox"/>
Subcontractor Overhead & Prof.	<input checked="" type="checkbox"/>
Prime Contractor Overhead & Prof.	<input checked="" type="checkbox"/>

**NOTES:**

Level B for excavation of contam. material; 42% Labor & 60% Equipment  
Escalation Factor of 1.00 for base year of 2001, cost information 2000  
0.69 localization factor for 052 zip code (Means)  
Assuming markup of 10% each for both Overhead and Profit.  
Assuming markup of 10% each for both Overhead and Profit.



Common Costs  
Capital Cost Sub-Element  
**DEWATERING STRUCTURES**

**COST WORKSHEET**

**Site:** Pownal Tannery Site  
**Location:** Pownal, Vt  
**Phase:** Feasibility Study  
**Base Year:** 2001  
**Date:** Apr-01

**Work Statement:**

Construction costs for a dewatering structure, 30' x 40', to store saturated contaminated material before treatment.

**Cost Analysis:**

DESCRIPTION (Local)	QTY	UNIT	LABOR	EQUIP	MTRL	UNIT TOTAL	TOTAL
Perimeter Berm (12" height min) Construction							
Material - Fill	53.9	TON	\$0.00	\$0.00	\$3.00	\$3.00	\$161.78
<b>DESCRIPTION (Means)</b>	<b>QTY</b>	<b>UNIT</b>	<b>LABOR</b>	<b>EQUIP</b>	<b>MTRL</b>	<b>TOTAL</b>	<b>TOTAL</b>
Fine grading of subsurface to slope to low point	133	SY	\$0.39	\$0.50	\$0.00	\$0.89	\$118.67
Concrete Ramp(s)	2	EA	\$203.93	\$0.00	\$318.26	\$522.19	\$1,044.38
Perimeter Berm (12" height min) Construction							
Spread/Compact, 6" lifts	373	SY	\$0.31	\$0.59	\$0.00	\$0.90	\$336.00
<b>SUBTOTAL</b>							<b>\$1,499.05</b>
Area Cost Factor						69%	\$1,034
<b>SUBTOTAL (Means and Local)</b>							<b>\$1,196</b>
Subcontractor Overhead						5%	\$59.81
<b>SUBTOTAL</b>							<b>\$1,256</b>
Subcontractor Profit						10%	\$126
<b>SUBTOTAL</b>							<b>\$1,381.52</b>
<b>DESCRIPTION (Subcontractor)</b>	<b>QTY</b>	<b>UNIT</b>	<b>LABOR</b>	<b>EQUIP</b>	<b>MTRL</b>	<b>TOTAL</b>	<b>TOTAL</b>
Geomembrane Liner (40mil thickness min)	1200	SF	\$0.00	\$0.00	\$0.00	\$1.00	\$1,200.00
Geotextile, nonwoven, 12oz	133	SY	\$0.00	\$0.00	\$0.00	\$1.50	\$200.00
							<b>\$1,400</b>
<b>SUBTOTAL (Local, Means and Sub)</b>							<b>\$2,781.52</b>
Contractor Overhead						5%	\$139.08
<b>SUBTOTAL</b>							<b>\$2,920.59</b>
Contractor Profit						10%	\$292.06
<b>TOTAL UNIT COST</b>							<b>\$3,213</b>

**Source of Cost Data:**

Construction Cost Data, RS Means, 58th Edition, 2000.  
Environmental Remediation Cost Data, RS Means, 6th Edition, 2000  
Installed costs from local subcontractor.

**Cost Adjustment Factor:**

**FACTOR:**  
H&S Productivity (labor & equip) ☐  
Escalation to Base Year ☐  
Area Cost Factor ☒  
Subcontractor Overhead & Prof. ☒  
Prime Contractor Overhead & Prof. ☒

**NOTES:**  
Work completed under Level D conditions  
Escalation Factor of 1.00 for base year of 2001, cost information 2000  
0.69 localization factor for 052 zip code (Means)  
Assuming markup of 10% each for both Overhead and Profit.  
Assuming markup of 10% each for both Overhead and Profit.

## Common Costs

## Capital Cost Sub-Element

## LEVEL B EQUIP &amp; MATERIALS

## COST WORKSHEET

Site: Pownal Tannery Site

Location: Pownal, Vt

Phase: Feasibility Study

Base Year: 2001

Date: Apr-01

## Work Statement:

## Cost Analysis:

## DESCRIPTION

QTY UNIT LABOR EQUIP MTRL TOTAL TOTAL

## Capital Costs (Per Person):

SCBA - Rescue, 30min, 2216psi	1	EA	\$0.00	\$0.00	\$1,819.65	\$1,819.65	\$1,819.65
Cascade Airline Kit, Four cylinder	1	EA	\$0.00	\$0.00	\$662.50	\$662.50	\$662.50
Low Pressure Warning Alarm	1	EA	\$0.00	\$0.00	\$220.00	\$220.00	\$220.00
MSA Constant Flow Airline Respirators - Full	1	EA	\$0.00	\$0.00	\$446.65	\$446.65	\$446.65
Neoprene Hose, 50'L	4	EA	\$0.00	\$0.00	\$257.05	\$257.05	\$1,028.20
MSA Kwik-Draw Pump	1	EA	\$0.00	\$0.00	\$325.00	\$325.00	\$325.00
Galvanized Gas Cylinder Safety Cabinet	0.2	EA	\$0.00	\$0.00	\$621.00	\$621.00	\$124.20
Gas Cylinder Tags, Labels & Signs	0.2	PKG	\$0.00	\$0.00	\$10.75	\$10.75	\$2.15
<b>SUBTOTAL</b>							<b>\$4,628.35</b>

Subcontractor Profit

10% \$463

SUBTOTAL

\$5,091

Prime Contractor Profit

10% \$509

TOTAL UNIT COST

**\$5,600**

## Monthly Costs:

Nitrile gloves	4	BOX	\$0.00	\$0.00	\$18.80	\$18.80	\$75.20
Nitrile gloves dispenser pack - outer	4	BOX	\$0.00	\$0.00	\$159.65	\$159.65	\$638.60
Tyvek 1A-25029	200	EA	\$0.00	\$0.00	\$6.65	\$6.65	\$1,330.00
Latex Overboots	200	PAIR	\$0.00	\$0.00	\$3.45	\$3.45	\$690.00
Duct Tape	50	ROLL	\$0.00	\$0.00	\$11.45	\$11.45	\$572.50
Caution Tape	20	ROLL	\$0.00	\$0.00	\$5.00	\$5.00	\$100.00
Walkie Talkies - Rent	6	MO	\$0.00	\$0.00	\$120.00	\$120.00	\$720.00
Industrial Scientific MG140 gas meter	3	MO	\$0.00	\$0.00	\$400.00	\$400.00	\$1,200.00
103L Cylinder of CO, H <sub>2</sub> S, O <sub>2</sub> , Pentane Cal gas	0.5	CYL	\$0.00	\$0.00	\$300.00	\$300.00	\$150.00
Flame-ionization detector - Rent	3	MO	\$0.00	\$0.00	\$640.00	\$640.00	\$1,920.00
Respirator Wipe Pads	10	PKG	\$0.00	\$0.00	\$15.10	\$15.10	\$151.00
MSA Detector Tubes - H <sub>2</sub> S	25	PKG	\$0.00	\$0.00	\$53.40	\$53.40	\$1,335.00
Compressed air 2.2 UN1002-T 311 CF	30	CYL	\$0.00	\$0.00	\$30.00	\$30.00	\$900.00
316 T UHP Hydrogen Gas	10	CYL	\$0.00	\$0.00	\$125.00	\$125.00	\$1,250.00
<b>SUBTOTAL</b>							<b>\$11,032.30</b>

Subcontractor Profit

10% \$1,103

SUBTOTAL

\$12,136

Prime Contractor Profit

10% \$1,214

TOTAL UNIT COST

**\$13,349**

CYL = cylinder

## Source of Cost Data:

Local vendors.

## Cost Adjustment Factor:

## FACTOR:

H&amp;S Productivity (labor &amp; equip)

Escalation to Base Year

Area Cost Factor

Subcontractor Profit.

Prime Contractor Profit.

## NOTES:

Not Applicable

Base year costs

Not applicable

Assuming markup of 10% for Profit.

Assuming markup of 10% for Profit.

Alternative 4

Capital Cost Sub-Element

BACKFILL

## COST WORKSHEET

Site: Pownal Tannery Site  
 Location: Pownal, VT  
 Phase: Feasibility Study  
 Base Year: 2001  
 Date: Apr-01

## Work Statement:

Backfill excavated contaminated soil with clean fill;  
 Backfill 75% of Lagoon 1 to Elev. 510' = 3.3 acres x 5 ft  
 Backfill estimate includes delivery, spreading and compaction of common fill.  
 Assumed for costing that all of the excavated material, including cover soils, is placed under cap.

## Cost Analysis:

DESCRIPTION	QTY	UNIT	LABOR	EQUIP	MTRL	UNIT TOTAL	TOTAL
Backfill Excavated Material with Common Fill	45,587	CY	\$0.86	\$1.98	\$5.06	\$7.90	\$360,135.25
Backfill Lagoon 1 to Elev 510'	19,965	CY	\$0.86	\$1.98	\$5.06	\$7.90	\$157,723.50
SUBTOTAL							\$517,858.75
Area Cost Factor						69%	\$357,323
Subcontractor Overhead						5%	\$17,866.13
SUBTOTAL							\$375,189
Subcontractor Profit						10%	\$37,518.87
SUBTOTAL							\$412,708
Contractor Overhead						5%	\$20,635.38
SUBTOTAL							\$433,343
Contractor Profit						10%	\$43,334.29
TOTAL UNIT COST							\$476,677.20

## Source of Cost Data:

Environmental Remediation Cost Data, RS Means, 6th Edition, 2000

## Cost Adjustment Factor:

FACTOR:  
 H&S Productivity (labor & equip) ☐  
 Escalation to Base Year ☐  
 Area Cost Factor ☒  
 Subcontractor Overhead & Prof. ☒  
 Prime Contractor Overhead & Prof. ☒

## NOTES:

Level D

Escalation Factor of 1.00 for base year of 2001, cost information 2000

0.69 localization factor for 052 zip code (Means)

Assuming markup of 10% each for both Overhead and Profit.

Assuming markup of 10% each for both Overhead and Profit.

Alternative 4  
Capital Cost Sub-Element  
**COLLECTION & TREATMENT OF LEACHATE**

**COST WORKSHEET**

**Site:** Pownal Tannery Site  
**Location:** Pownal, VT  
**Phase:** Feasibility Study  
**Base Year:** 2001  
**Date:** Apr-01

**Work Statement:**

Estimated time to complete excavation and initial installation of cap subgrade is assumed to be 16 wks.  
Analytical monitoring for compliance 40 CFR 261 before direct discharge into onsite infiltration galleries.

**Cost Analysis:**

DESCRIPTION (Local)	QTY	UNIT	LABOR	EQUIP	MTRL	UNIT TOTAL	TOTAL
Rental of Fragmentation Tanks	4	MO	\$0.00	\$0.00	\$1,500.00	\$1,500.00	\$6,000.00
Rental of Carbon Equipment & Operation	16	WK	\$0.00	\$0.00	\$1,500.00	\$1,500.00	\$24,000.00
Material Cost - Carbon	10000	LB	\$0.00	\$0.00	\$0.65	\$0.65	\$6,500.00
Decontamination of Frac. Tanks	2	EA	\$0.00	\$0.00	\$1,000.00	\$1,000.00	\$2,000.00
Disposal of Carbon	10000	LB	\$0.00	\$0.00	\$1.00	\$1.00	\$10,000.00
							<u>\$48,500.00</u>

DESCRIPTION (Means)	QTY	UNIT	LABOR	EQUIP	MTRL	TOTAL	TOTAL
Analytical Testing	10	EA	\$0.00	\$0.00	\$1,545.00	\$1,545.00	\$15,450.00
Hay Bales, Staked	4800	LF	\$0.21	\$0.07	\$2.00	\$2.28	\$10,944.00
Waste Pile Cover, 135lb Tear	1452	SY	\$0.16	\$0.00	\$1.53	\$1.69	\$2,453.29
SUBTOTAL - Means							<u>\$28,847.29</u>

Area Cost Factor	69%	\$19,905
SUBTOTAL (Local and Means)		<u>\$68,405</u>

Subcontractor Overhead	5%	\$3,420.23
SUBTOTAL		<u>\$71,825</u>
Subcontractor Profit	10%	\$7,182.49
SUBTOTAL		<u>\$79,007.35</u>
Contractor Overhead	5%	\$3,950
SUBTOTAL		<u>\$82,958</u>
Contractor Profit	10%	<u>\$8,295.77</u>

TOTAL UNIT COST		<u><u>\$91,253.49</u></u>
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**Source of Cost Data:**

Local costs from an ongoing project.  
Construction Cost Data, RS Means, 58th Edition, 2000; Local cost estimate from an ongoing project.  
Environmental Remediation Cost Data, RS Means, 6th Edition, 2000

**Cost Adjustment Factor:**

**FACTOR:**  
H&S Productivity (labor & equip) ☐  
Escalation to Base Year ☐  
Area Cost Factor ☒  
Subcontractor Overhead & Prof. ☒  
Prime Contractor Overhead & Prof. ☒

**NOTES:**  
Level D  
Escalation Factor of 1.00 for base year of 2001, cost information 2000  
0.69 localization factor for 052 zip code (Means)  
Assuming markup of 10% each for both Overhead and Profit.  
Assuming markup of 10% each for both Overhead and Profit.

Alternative 4  
Capital Cost Sub-Element  
**ODOR SUPPRESSANT**

## COST WORKSHEET

Site: Pownal Tannery Site  
Location: Pownal, Vt  
Phase: Feasibility Study  
Base Year: 2001  
Date: Apr-01

**Work Statement:**

Application of foam odor suppressant during excavation and capping of contaminated material.

**Cost Analysis:**

DESCRIPTION	QTY	UNIT	LABOR	EQUIP	MTRL	UNIT TOTAL	TOTAL
Equipment Rental	4	MO	-	\$2,000.00	-	\$2,000.00	\$8,000.00
Labor	2	WK	\$2,600.00	-	-	\$2,600.00	\$5,200.00
Material cost	1	1800 LBS	-	-	\$1,478.00	\$1,478.00	\$1,478.00
SUBTOTAL							\$14,678.00

Contractor Overhead	5%	\$733.90
SUBTOTAL		\$15,411.90
Contractor Profit	10%	\$1,541.19
TOTAL UNIT COST		\$16,953.09

**Source of Cost Data:**

Equipment and material costs from an ongoing project.

**Cost Adjustment Factor:**

FACTOR:  
H&S Productivity (labor & equip) ☐  
Escalation to Base Year ☐  
Area Cost Factor ☐  
Subcontractor Overhead & Prof. ☒  
Prime Contractor Overhead & Prof. ☒

**NOTES:**

Escalation Factor of 1.00 for base year of 2001, cost information 2000  
Not applicable  
Assuming markup of 10% each for both Overhead and Profit.  
Assuming markup of 10% each for both Overhead and Profit.

Alternative 4  
Capital Cost Sub-Element  
**SAND LAYER**

# **COST WORKSHEET**

Site: Pownal Tannery Site  
Location: Pownal, VT  
Phase: Feasibility Study  
Base Year: 2001  
Date: Apr-01

**Work Statement:**

Thickness of sand layer taken as 12" over an approximate area of 4 acres, increased by 30% to account for side slopes. Sand ton = 4 acres x 30% increase x 1.5 TONS/CY = approx. 12,600 tons.

**Cost Analysis:**

DESCRIPTION (Local)	QTY	UNIT	LABOR	EQUIP	MTRL	UNIT TOTAL	TOTAL
Common Sand	12,584	TON	\$0.00	\$0.00	\$5.75	\$5.75	\$72,358.00
<b>DESCRIPTION (Means)</b>	<b>QTY</b>	<b>UNIT</b>	<b>LABOR</b>	<b>EQUIP</b>	<b>MTRL</b>	<b>TOTAL</b>	<b>TOTAL</b>
Excavation of Sand at pit	8,389	CY	\$0.34	\$1.66	\$0.00	\$2.00	\$16,778.67
Loading of Sand at pit	8,389	CY	\$0.39	\$1.91	\$0.00	\$2.30	\$19,295.47
Hauling Sand, 10 mi round trip	8,389	CY	\$1.66	\$5.10	\$0.00	\$6.76	\$56,711.89
Spreading in 8" layers, small dozer	8,389	CY	\$0.30	\$0.76	\$0.00	\$1.06	\$8,892.69
Compaction Sand, 6" to 12" lifts, vibrating roller	8,389	CY	\$0.40	\$1.15	\$0.00	\$1.55	\$13,003.47
<b>SUBTOTAL - Means</b>							<b>\$114,682.19</b>
Area Cost Factor						69%	\$79,131
<b>SUBTOTAL (Local and Means)</b>							<b>\$151,489</b>
Subcontractor Overhead						5%	\$7,574.44
<b>SUBTOTAL</b>							<b>\$159,063</b>
Subcontractor Profit						10%	\$15,906.31
<b>SUBTOTAL</b>							<b>\$174,969</b>
<b>DESCRIPTION (Means - Sub O&amp;P included)</b>	<b>QTY</b>	<b>UNIT</b>	<b>LABOR</b>	<b>EQUIP</b>	<b>MTRL</b>	<b>TOTAL</b>	<b>TOTAL</b>
In-Place Density	8	EA	\$0.00	\$0.00	\$0.00	\$38.67	\$309.36
Area Cost Factor						69%	\$213
<b>SUBTOTAL</b>							<b>\$175,182.92</b>
Prime Contractor Overhead						5%	\$8,759.15
<b>SUBTOTAL</b>							<b>\$183,942</b>
Prime Contractor Profit						10%	\$18,394.21
<b>TOTAL UNIT PRICE</b>							<b>\$202,336.27</b>

**Source of Cost Data:**

Local costs from nearby borrow source obtained on 2/27/01.  
Building Construction Cost Data, RS Means, 58th Edition, 2000

**Cost Adjustment Factor:**

**FACTOR:**  
H&S Productivity (labor & equip) ☐  
Escalation to Base Year ☐  
Area Cost Factor ☒  
Subcontractor Overhead & Prof. ☒  
Prime Contractor Overhead & Prof. ☒

**NOTES:**  
Level D  
Escalation Factor of 1.00 for base year of 2001, cost information 2000  
0.69 localization factor for 052 zip code (Means)  
Assuming markup of 10% each for both Overhead and Profit.  
Assuming markup of 10% each for both Overhead and Profit.

Alternative 4  
Capital Cost Sub-Element  
**GAS COLLECTION LAYER**

**COST WORKSHEET**

Site: Pownal Tannery Site  
Location: Pownal, VT  
Phase: Feasibility Study  
Base Year: 2001  
Date: Apr-01

**Work Statement:**

Thickness of gas collection layer taken as 12" over an approximate area of 4 acres increased by 30% to account for side slopes. Sand ton = 4 acres x 30% increase 1.5 TONS/CY = approx. 12,600 tons.  
Gas venting system costed by assuming 1 gas vent/ACRE at \$1,500/vent based on engineering judgement and experience.

**Cost Analysis:**

DESCRIPTION (Local)	QTY	UNIT	LABOR	EQUIP	MTRL	UNIT TOTAL	TOTAL
Common Sand	12,584	TON	\$0.00	\$0.00	\$5.75	\$5.75	\$72,358.00
DESCRIPTION (Means)	QTY	UNIT	LABOR	EQUIP	MTRL	TOTAL	TOTAL
Excavation of Sand at pit	8,389	CY	\$0.34	\$1.66	\$0.00	\$2.00	\$16,778.67
Loading of Sand at pit	8,389	CY	\$0.39	\$1.91	\$0.00	\$2.30	\$19,295.47
Hauling Sand, 10 mi round trip	8,389	CY	\$1.66	\$5.10	\$0.00	\$6.76	\$56,711.89
Spreading in 8" layers, small dozer	8,389	CY	\$0.30	\$0.76	\$0.00	\$1.06	\$8,892.69
Compaction Sand, 6" to 12" lifts, vibrating roller	8,389	CY	\$0.40	\$1.15	\$0.00	\$1.55	\$13,003.47
Gas Venting Wells	4	EA	-	-	-	\$1,500.00	\$6,000.00
SUBTOTAL - Means							\$120,682.19
Area Cost Factor						69%	\$83,271
SUBTOTAL (Local and Means)							\$155,629
Subcontractor Overhead						5%	\$7,781.44
SUBTOTAL							\$163,410
Subcontractor Profit						10%	\$16,341
SUBTOTAL							\$179,751
DESCRIPTION (Means - Sub O&P included)	QTY	UNIT	LABOR	EQUIP	MTRL	TOTAL	TOTAL
In-Place Density	8	EA	\$0.00	\$0.00	\$0.00	\$38.67	\$309.36
Area Cost Factor						69%	\$213
SUBTOTAL							\$179,964.62
Prime Contractor Overhead						5%	\$8,998.23
SUBTOTAL							\$188,963
Prime Contractor Profit						10%	\$18,896.28
TOTAL UNIT PRICE							<b>\$207,859.13</b>

**Source of Cost Data:**

Local costs from nearby borrow source obtained on 2/27/01.  
Building Construction Cost Data, RS Means, 58th Edition, 2000

**Cost Adjustment Factor:**

FACTOR:  
H&S Productivity (labor & equip) ☐  
Escalation to Base Year ☐  
Area Cost Factor ☒  
Subcontractor Overhead & Prof. ☒  
Prime Contractor Overhead & Prof. ☒

NOTES:  
Level D  
Escalation Factor of 1.00 for base year of 2001, cost information 2000  
0.69 localization factor for 052 zip code (Means)  
Assuming markup of 10% each for both Overhead and Profit.  
Assuming markup of 10% each for both Overhead and Profit.

Alternative 4  
Capital Cost Sub-Element  
GEOSYNTHETICS

## COST WORKSHEET

Site: Pownal Tannery Site  
Location: Pownal, Vt  
Phase: Feasibility Study  
Base Year: 2001  
Date: Apr-01

### Work Statement:

Place geotextile filter fabrics between sand layers within cover system and adjacent covering fine grained material.

### Cost Analysis:

DESCRIPTION	QTY	UNIT	LABOR	EQUIP	MTRL	UNIT TOTAL	TOTAL
Geotextile	50,335	SY	-	-	-	\$1.50	\$75,503.24
SUBTOTAL - Local							\$75,503.24
Prime Contractor Overhead						5%	\$3,775
SUBTOTAL							\$79,278
Prime Contractor Profit						10%	\$7,928
TOTAL UNIT COST							\$87,206

### Source of Cost Data:

Cost estimate from local vendor obtained on 3/20/01.

### Cost Adjustment Factor:

FACTOR:

H&S Productivity (labor & equip)	<input type="text"/>
Escalation to Base Year	<input type="text"/>
Area Cost Factor	<input checked="" type="checkbox"/>
Subcontractor Overhead & Prof.	<input checked="" type="checkbox"/>
Prime Contractor Overhead & Prof.	<input checked="" type="checkbox"/>

### NOTES:

Level D

Escalation Factor of 1.00 for base year of 2001, cost information 2000

0.69 localization factor for 052 zip code (Means)

Assuming markup of 10% each for both Overhead and Profit.

Assuming markup of 10% each for both Overhead and Profit.



Alternative 4  
Capital Cost Sub-Element  
**VEGETATIVE SUPPORT LAYER**

**COST WORKSHEET**

Site: Pownal Tannery Site  
Location: Pownal, VT  
Phase: Feasibility Study  
Base Year: 2001  
Date: Apr-01

**Work Statement:**

26" layer of vegetative support soil over a 4 acre area. Area increased by 30% to account for side slopes.  
Layers to be placed in lifts of 6" and in-place density testing completed at a rate of 1 test/acre/lift. Approx. area of cap for testing ~ 4 acres, 4 lifts/acre. Sand ton = 4 acres x 1.3 x 2.2ft x 1.5 TONS/CY = approx. 27,000 tons.

**Cost Analysis:**

DESCRIPTION (Local)	QTY	UNIT	LABOR	EQUIP	MTRL	UNIT TOTAL	TOTAL
Common Sand	27,265	TON	\$0.00	\$0.00	\$5.75	\$5.75	\$156,775.67
<b>DESCRIPTION (Means)</b>	<b>QTY</b>	<b>UNIT</b>	<b>LABOR</b>	<b>EQUIP</b>	<b>MTRL</b>	<b>TOTAL</b>	<b>TOTAL</b>
Excavation of Sand at pit	18,177	CY	\$0.34	\$1.66	\$0.00	\$2.00	\$36,353.78
Loading of Sand at pit	18,177	CY	\$0.39	\$1.91	\$0.00	\$2.30	\$41,806.84
Hauling Sand, 10 mi round trip	18,177	CY	\$1.66	\$5.10	\$0.00	\$6.76	\$122,875.77
Spreading in 8" layers, small dozer	18,177	CY	\$0.30	\$0.76	\$0.00	\$1.06	\$19,267.50
Compaction Sand, 6" to 12" lifts, vibrating roller	18,177	CY	\$0.40	\$1.15	\$0.00	\$1.55	\$28,174.18
<b>SUBTOTAL</b>							<b>\$248,478.07</b>
Area Cost Factor						69%	\$171,450
<b>SUBTOTAL (Local and Means)</b>							<b>\$328,226</b>
Subcontractor Overhead						5%	\$16,411.28
<b>SUBTOTAL</b>							<b>\$344,637</b>
Subcontractor Profit						10%	\$34,463.68
<b>SUBTOTAL</b>							<b>\$379,100.49</b>
<b>DESCRIPTION (Means - Sub O&amp;P included)</b>	<b>QTY</b>	<b>UNIT</b>	<b>LABOR</b>	<b>EQUIP</b>	<b>MTRL</b>	<b>TOTAL</b>	<b>TOTAL</b>
In-Place Density	18	EA	\$0.00	\$0.00	\$0.00	\$38.67	\$696.06
Area Cost Factor						69%	\$480
<b>SUBTOTAL</b>							<b>\$379,580.78</b>
Prime Contractor Overhead						5%	\$18,979.04
<b>SUBTOTAL</b>							<b>\$398,560</b>
Prime Contractor Profit						10%	\$39,855.98
<b>TOTAL UNIT PRICE</b>							<b>\$438,415.80</b>

**Source of Cost Data:**

Local costs from nearby borrow source obtained on 2/27/01.  
Building Construction Cost Data, RS Means, 58th Edition, 2000

**Cost Adjustment Factor:**

<b>FACTOR:</b>	
H&S Productivity (labor & equip)	<input type="checkbox"/>
Escalation to Base Year	<input type="checkbox"/>
Area Cost Factor	<input checked="" type="checkbox"/>
Subcontractor Overhead & Prof.	<input checked="" type="checkbox"/>
Prime Contractor Overhead & Prof.	<input checked="" type="checkbox"/>

**NOTES:**

Level D

Escalation Factor of 1.00 for base year of 2001, cost information 2000

0.69 localization factor for 052 zip code (Means)

Assuming markup of 10% each for both Overhead and Profit.

Assuming markup of 10% each for both Overhead and Profit.

Alternative 4  
Capital Cost Sub-Element  
**TOPSOIL**

## COST WORKSHEET

**Site:** Pownal Tannery Site  
**Location:** Pownal, Vt  
**Phase:** Feasibility Study  
**Base Year:** 2001  
**Date:** Apr-01

**Work Statement:**

6" layer of topsoil over an approximate 174,240 s.f. area increased by 30% to account for side slopes. Assuming volumetric weight of topsoil = 1.5 TONS/CY x 4200 CY = approx. 6,300 tons.

**Cost Analysis:**

DESCRIPTION (Local)	QTY	UNIT	LABOR	EQUIP	MTRL	UNIT TOTAL	TOTAL
Common Topsoil	6,292	TON	\$0.00	\$0.00	\$11.50	\$11.50	\$72,358.00
DESCRIPTION (Means)	QTY	UNIT	LABOR	EQUIP	MTRL	TOTAL	TOTAL
Excavation of Topsoil at pit	4,195	CY	\$0.34	\$1.66	\$0.00	\$2.00	\$8,389.33
Loading of Topsoil at pit	4,195	CY	\$0.39	\$1.91	\$0.00	\$2.30	\$9,647.73
Hauling Topsoil, 10 mi round trip	4,195	CY	\$1.66	\$5.10	\$0.00	\$6.76	\$28,355.95
Area Preparation, 67% Level, 33% Slope	4	ACRE	\$22.05	\$40.14	\$0.00	\$62.19	\$248.76
Fine Grading	19,360	SY	\$0.06	\$0.15	\$0.00	\$0.21	\$4,065.60
<b>SUBTOTAL</b>							<b>\$50,707.37</b>
Area Cost Factor						69%	\$34,988
<b>SUBTOTAL (Local and Means)</b>							<b>\$107,346</b>
Subcontractor Overhead						5%	\$5,367.30
<b>SUBTOTAL</b>							<b>\$112,713</b>
Subcontractor Profit						10%	\$11,271.34
<b>SUBTOTAL</b>							<b>\$123,985</b>
Contractor Overhead						5%	\$6,199.24
<b>SUBTOTAL</b>							<b>\$130,184</b>
Contractor Profit						10%	\$13,018.40
<b>TOTAL UNIT COST</b>							<b>\$143,202.36</b>

**Source of Cost Data:**

Local costs from nearby borrow source obtained on 2/27/01.  
Building Construction Cost Data, RS Means, 58th Edition, 2000  
Environmental Remediation Cost Data, RS Means, 6th Edition, 2000

**Cost Adjustment Factor:**

**FACTOR:**  
H&S Productivity (labor & equip) ☐  
Escalation to Base Year ☐  
Area Cost Factor ☒  
Subcontractor Overhead & Prof. ☒  
Prime Contractor Overhead & Prof. ☒

**NOTES:**  
Level D  
Escalation Factor of 1.00 for base year of 2001, cost information 2000  
0.69 localization factor for 052 zip code (Means)  
Assuming markup of 10% each for both Overhead and Profit.  
Assuming markup of 10% each for both Overhead and Profit.

Alternative 4

Capital Cost Sub-Element  
DRAINAGE STRUCTURES

## COST WORKSHEET

Site: Pownal Tannery Site  
 Location: Pownal, VT  
 Phase: Feasibility Study  
 Base Year: 2001  
 Date: Apr-01

## Work Statement:

Estimate of material required to build drainage structures for a landfill cap assuming drainage swale around perimeter of cap footprint, width of 10' and depth of 2', consisting of 10 to 100 lb riprap over nonwoven geotextile. An allowance for two heavy stone riprap areas of ~200 sf were assumed for construction of heavy drainage outlet structures.

## Cost Analysis:

DESCRIPTION (Means)	QTY	UNIT	LABOR	EQUIP	MTRL	UNIT TOTAL	TOTAL
Rock Cover, Riprap, Heavy (25 to 500 lb)	60	CY	\$3.00	\$2.38	\$15.78	\$21.16	\$1,269.60
Rock Cover, Riprap, Light (10 to 100 lb)	1602	CY	\$3.00	\$2.38	\$15.06	\$20.44	\$32,744.88
SUBTOTAL							\$34,014.48
Area Cost Factor						69%	\$23,470
Subcontractor Overhead						5%	\$1,173.50
SUBTOTAL							\$24,643
Subcontractor Profit						10%	\$2,464
SUBTOTAL							\$27,108
Prime Contractor Overhead						5%	\$1,355.39
SUBTOTAL							\$28,463.23
Prime Contractor Profit						10%	\$2,846.32
SUBTOTAL							\$31,309.56
DESCRIPTION (Local Contractor)	QTY	UNIT	LABOR	EQUIP	MTRL	UNIT TOTAL	TOTAL
Geotextile	7212	SY	-	-	-	\$1.50	\$10,818.00
Prime Contractor Overhead						5%	\$540.90
SUBTOTAL							\$11,358.90
Prime Contractor Profit						10%	\$1,135.89
SUBTOTAL							\$12,494.79
TOTAL UNIT COST							\$43,804

## Source of Cost Data:

Environmental Remediation Cost Data, RS Means, 6th Edition, 2000

Geotextile estimate from local subcontractor for installed material, includes subcontractor's markup for overhead and profit.

## Cost Adjustment Factor:

FACTOR:  
 H&S Productivity (labor & equip) ☐  
 Escalation to Base Year ☐  
 Area Cost Factor ☒  
 Subcontractor Overhead & Prof. ☒  
 Prime Contractor Overhead & Prof. ☒

## NOTES:

Level D

Escalation Factor of 1.00 for base year of 2001, cost information 2000

0.69 localization factor for 052 zip code (Means)

Assuming markup of 10% each for both Overhead and Profit.

Assuming markup of 10% each for both Overhead and Profit.

Common costs  
Capital Cost Sub-Element  
LAND USE RESTRICTIONS

## COST WORKSHEET

Site: Pownal Tannery Site  
Location: Pownal, VT  
Phase: Feasibility Study  
Base Year: 2001  
Date: Apr-01

Work Statement:  
Zoning/Deed restrictions

### Cost Analysis:

DESCRIPTION	QTY	UNIT	LABOR	EQUIP	MTRL	UNIT TOTAL	TOTAL
Legal Preparation	120	HR	\$150.00	\$0.00	\$0.00	\$150.00	\$18,000.00
Engineering Support	80	HR	\$75.00	\$1.62	\$18.43	\$95.05	\$7,604.00
Filing	1	LS	\$0.00	\$0.00	\$2,000.00	\$2,000.00	\$2,000.00
SUBTOTAL							\$27,604.00
Contractor Overhead						5%	\$1,380.20
SUBTOTAL							\$28,984.20
Contractor Profit						10%	\$2,898.42
TOTAL UNIT COST							\$31,882.62

Source of Cost Data:  
Engineering judgement